



# The National Health Survey 1935-36

Part I. SCOPE AND METHOD

Part II. ANNOTATED BIBLIOGRAPHY, 1936-50

Prepared by

Division of Public Health Methods, Public Health Service



FEDERAL SECURITY AGENCY  
PUBLIC HEALTH SERVICE

PUBLIC HEALTH BIBLIOGRAPHY SERIES, NO. 5



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# Foreword

CONTINUED INTEREST in the National Health Survey of 1935-36, and requests for information on the methods used in its house-to-house canvass of some 700,000 households, have made it necessary to reissue "The National Health Survey; Scope and Method of the Nation-Wide Canvass of Sickness in Relation to Its Social and Economic Setting" (Reprint No. 2098 from *Public Health Reports* of September 15, 1939). That reprint forms Part I of this publication.

Data from the National Health Survey, and from other studies in the National Health Inventory of which the Survey was a part, have formed the basis of some 180 reports and articles, published over more than a decade in many different journals and bulletins. A comprehensive list of references, with brief annotations, to material presenting descriptions or findings of the Survey, appears as Part II of this publication. It was prepared by Violet B. Turner, Special Consultant to the Division of Public Health Methods, working under the direction of Martha D. Ring.

G. ST. J. PERROTT

*Chief, Division of Public Health Methods*

# Scope and Method

## INTRODUCTION

THE NATIONAL HEALTH SURVEY, part of a comprehensive National Health Inventory, was a project carried out by the Public Health Service with the help of grants from the Work Projects Administration (Official Project Nos. 712159-658/9999, 765-23-3-10, and 65-2-23-356). Field observations were completed in 1935-36, while some of the tabulations and special studies were not completed until several years later. The Inventory included the following: (1) a house-to-house canvass of sickness and medical care among approximately 2,500,000 persons in 83 cities and 140,000 in 23 rural counties; (2) a communicable disease survey in 28 cities; (3) special studies of hospitals and other health and medical facilities in the counties included in the house-to-house canvass; (4) a special audiometric study of hearing loss in a sample of the surveyed population; (5) transcripts of records of industrial sick benefit organizations, used in an occupational morbidity and mortality study; (6) a study of maternal care in Michigan, carried out with the assistance of the Michigan State Medical Society; (7) a study of family composition made by the Bureau of Research and Statistics of the Social Security Board from special tabulations made from the completed schedules of the house-to-house canvass; (8) several local surveys such as those of dental care in Detroit, pregnancy wastage in New York City, and milk consumption in Buffalo.

## THE NATIONAL HEALTH SURVEY\*

### Scope and Method of the Nation-Wide Canvass of Sickness in Relation to Its Social and Economic Setting

By GEORGE ST. J. PERROTT, *Principal Statistician*, CLARK TIBBITTS, *Field Director*, and ROLLO H. BRITTEN, *Senior Statistician*, *United States Public Health Service*

During the winter of 1935-36 the United States Public Health Service inquired into the state of the Nation's health and underlying

\* From the Division of Public Health Methods, National Institute of Health. The National Health Inventory, of which the house-to-house canvass here reported constituted the major part, was a project executed with the aid of grants from the Work Projects Administration. Other phases of the Inventory dealing with health and medical facilities, occupational morbidity and mortality, and communicable diseases, are reported separately. The National Health Survey was carried out in cooperation with the State and local health authorities and various agencies, including medical societies, churches, and special groups. Such cooperation was extremely important in making the undertaking successful.

social and economic factors by means of a house-to-house canvass of over 700,000 households in urban communities in 18 States<sup>1</sup> and 37,000 households in rural areas in 3 States. The present paper sets forth the purpose and scope of the survey, outlines in some detail the method of sampling and canvassing, compares various aspects of the population with 1930 Census data as a rough measure of the reliability of the Health Survey sample, and records the major definitions employed in the survey. Subsequent papers to be published in the PUBLIC HEALTH REPORTS or as special monographs will present the detailed findings.

### SCOPE OF THE SURVEY

The data necessary for comprehensive analysis of national health problems are not available from regularly compiled records. Local, State, and Federal health agencies collect information principally on births, deaths, and a limited list of incompletely reported communicable diseases. On the frequency of accidents and disabilities resulting therefrom, only approximate estimates based on records of insurance companies, workmen's compensation commissions, and industrial and safety organizations have been available. As to the provision of medical care, records of doctors, hospitals, and health agencies lack the uniformity and centralization necessary for statistical comparisons. Any adequate picture of care received in relation to needs can be obtained only through family reporting.

The Health Survey procedures were based upon techniques developed by the Public Health Service during 20 years of experience with the family canvass as a method of studying sickness and related economic factors. Earlier important surveys include a series of canvasses in South Carolina cotton-mill villages by the Public Health Service, 1916-18; studies made in Hagerstown, Md., 1921-24; a survey of 9,000 families in 130 communities, made in cooperation with the Committee on the Costs of Medical Care, 1928-31; and the Health and Depression Studies carried on among 11,500 wage earners' families in 8 large cities and 2 groups of coal-mining and cotton-mill villages in 1933. None of the previous surveys covered more than about 10,000 families, whereas the present one included three-quarters of a million families. A large scale survey was needed to permit highly detailed classifications and adequate study of illnesses of long duration or of infrequent occurrence.

The urban surveyed population was so distributed as to give a sample which was, in general, representative of cities in the United States, according to size and region. In large cities (100,000 popula-

<sup>1</sup> See Appendix B.

tion and over) the population to be canvassed was determined by a random selection of many small districts, based on those used in the United States Census of 1930. In the smaller cities selected for study all the population was enumerated.

Data requested from each family <sup>2</sup> included:

1. Population and related data: Age, sex, color, marital condition, nativity, usual occupation, employment status, family income and relief status, value of home or rent charged, number of rooms in the dwelling, and sanitary facilities.

2. Morbidity data (frequency, nature, duration, etc.) concerning: (a) Illness keeping a person from work, school, or other usual activity on the day of the canvass; (b) illness which had disabled a person in the above sense continuously for 7 days or more during the 12 months preceding the date of the canvass; <sup>3</sup> (c) chronic disease, whether or not it had caused disability; (d) gross physical impairment, including lost and impaired legs, feet, arms, and fingers, and total or partial blindness and deafness.<sup>4</sup>

3. Certain data on the kind and amount of medical care: Number of calls by doctors, days spent in hospital, days of private duty nursing, and the number of calls by a visiting nurse.

A copy of the schedule used in collecting these data is included in this report (Appendix A).<sup>5</sup>

## METHODS AND TECHNIQUES

*Selection of the sample.*—The reports in general are based on schedules taken in 83 <sup>6</sup> cities for 703,092 households, comprising 2,502,391 individuals, or a number equivalent to 3.6 percent of the urban population of the United States as reported in the 1930 Census. An additional 36,801 households, comprising 140,418 persons, were canvassed in 23 primarily rural counties, in order that at least indicatory data might be obtained on the rural health problem.

<sup>1</sup> The information was obtained by interviews with the housewife or other responsible member of the household.

<sup>2</sup> Data were also obtained for hospital cases, confinements, and fatal cases which had disabled for less than 7 days.

<sup>3</sup> A supplementary clinical study of hearing was carried out for the purpose of checking the reports on this subject made by the family. Auditory acuity measurements, otological examinations, and medical histories were obtained for a stratified sample of about 9,000 persons enumerated in the general survey. See list of bulletins on this phase in Appendix C.

<sup>4</sup> The general nature of the items on which information was secured is largely self-evident from the schedule form. It might be mentioned that for column 15 the information was secured as to whether the person was employed, on work relief, seeking work, retired, not seeking work because of chronic disability, a housewife, at school, or at home. In column 33 three classes were recorded as to termination of the illness: Still disabled (i. e., on day of visit); recovered in the sense of being able to pursue usual activity; died. In the case of accidents and impairments resulting from accidents, information was obtained as to the place of occurrence (home, public, occupational) and whether or not the accident was an automobile accident.

<sup>5</sup> The original sample included 95 cities, but some of them were dropped for various administrative reasons. Their deletion did not materially affect the representativeness of the sample.

The 83 cities were distributed so as to be representative of 4 main geographic regions, Northeast, North Central, South, and West.<sup>7</sup>

The cities to be studied and the number of schedules to be taken in each one were determined according to a plan designed to result in (1) a population distributed according to geographic area in approximately the same proportion as was the total urban population in 1930, and (2) inclusion of cities distributed among 4 different size-groups—500,000 population or more; 100,000 to 500,000; 25,000 to 100,000; and less than 25,000 population.

The sample was selected as follows: Before choosing the study communities, all cities of 2,500 or more population in the United States were classified on the basis of the 4 regions and according to the size-groups within each region. Cities were then selected to obtain, insofar as possible, size and geographic representation similar to that of these classes.

In order to avoid too great over-representation of large city populations, 32 large cities (of which 31 were over 100,000 in population) were sampled, while 51 smaller cities were completely canvassed. The samples enumerated in the larger cities varied from 5,000 to 45,000 households, not according to a fixed ratio but on the basis of the number believed adequate to represent the individual community, and the number required on the basis of regional and size distribution. In the cities which were not completely canvassed the proportion of surveyed households to total households ranged from 1 in 2 in the smaller cities to about 1 in 38 in the largest cities.

The geographic distribution of the survey sample corresponded very closely to that of the 1930 urban population, as shown in table 1. Financial, administrative, and time considerations made it impossible to include the very large number of small cities necessary to give a sample population distributed by city-size group in the same proportion as the 1930 urban population. Each size-group was nevertheless well represented.

Appendix B shows the survey cities arranged according to region and size-group. Figure 1 shows the location of the cities surveyed.<sup>8</sup>

The proportion of households to be visited in a given sampled city was obtained by dividing the predetermined survey quota of households by the estimated total number of households in the community.<sup>9</sup> The sampling ratio for each city having been determined, the best

<sup>7</sup> The Health Survey States included in the 4 regions are: Northeast—Massachusetts, New Jersey, New York, Pennsylvania; North Central—Illinois, Michigan, Minnesota, Missouri, Ohio; South—Alabama, Georgia, Louisiana, Texas, Virginia; West—California, Oregon, Utah, Washington.

Northeast includes the New England and Middle Atlantic groups of the conventional Census classification; North Central includes East and West North Central; South includes South Atlantic and East and West South Central; West includes Mountain and Pacific.

<sup>8</sup> The 23 rural counties which were studied are located in 3 States and, of course, are not representative of the whole rural population. Sixteen are in Georgia, 4 in Michigan, and 3 in Missouri.

<sup>9</sup> The total number of households was estimated by dividing the city population in 1930 by 4, the approximate average number of persons per family in urban United States in 1930.

TABLE 1.—Comparative percentage distributions of urban Health Survey and urban 1930 Census populations by geographic area and city size

Region	Regional distribution		City size	City size distribution	
	Health Survey	1930 urban		Health Survey	1930 urban
All.....	100	100	All.....	100	100
Northeast.....	37	39	500,000 or more.....	43	29
North Central.....	33	33	100,000 to 500,000.....	31	23
South.....	18	18	25,000 to 100,000.....	14	19
West.....	12	10	Under 25,000.....	12	29

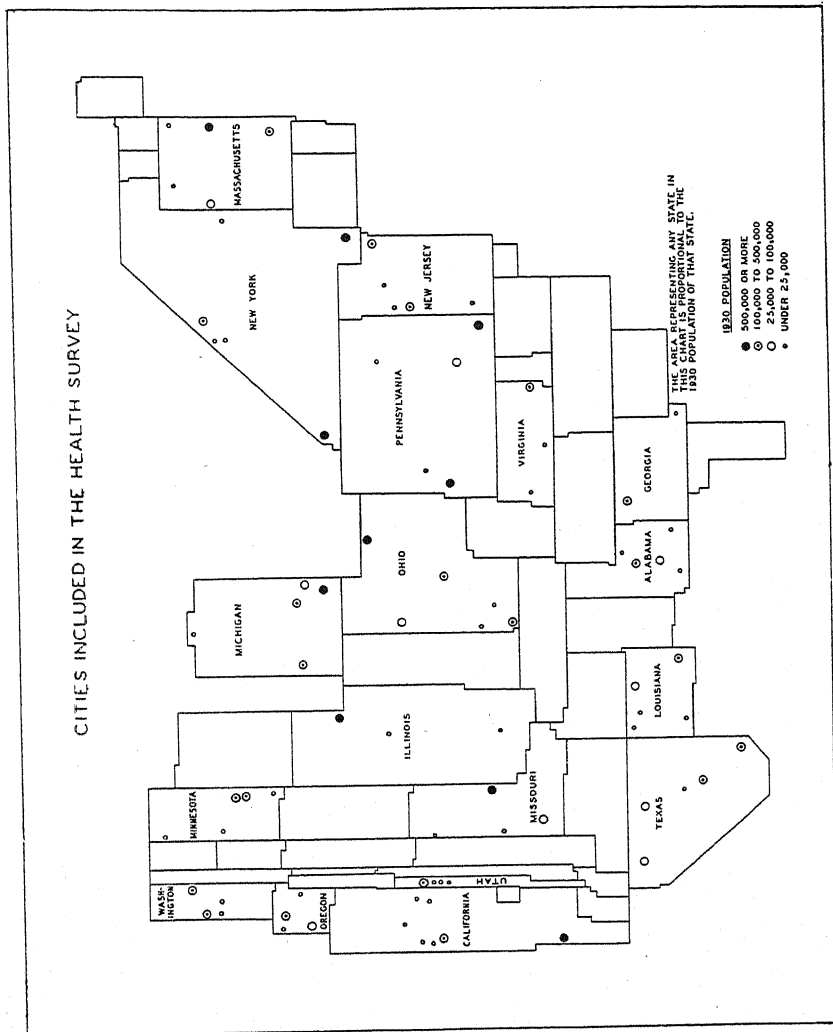


FIGURE 1.

method of identifying households for canvass would have been to make a random selection from a complete list of households in each city, but, unfortunately, no such list was available (except for New York City, where the list was used). The next best unit would have been city blocks; however, the preparation of such a list was impossible in the time available. Hence, it was decided to use groups of city blocks, known as enumeration districts and set up by the Bureau of the Census in 1930. These groups represented units of population in each city and provided convenient assignments for squads of enumerators. Their sampling utility was limited, however, because frequently it was impossible to include enough of them to make certain that each population group within a city would be adequately represented. This difficulty was anticipated, and it was possible partially to avoid it by subdividing larger enumeration districts.<sup>10</sup> A number was assigned to each of these subdistricts (following the numerical order of the enumeration districts themselves), and the appropriate sample was then selected from this list. Thus, if it had been determined that the survey was to include one-eleventh of the population, every eleventh enumeration district or subdistrict was selected from the new list. The sample so obtained no doubt fails in some cases properly to represent minority populations in particular cities, but does serve adequately for groups of cities.

In connection with the question of representativeness of the sample, mention should be made of classes of persons excluded under the definitions set up, provided they had been absent from their own households for a month or longer.<sup>11</sup> These are: (a) Persons in penal institutions; (b) residents of Army and Navy posts and barracks, orphanages, and homes for the aged; (c) persons in hotels, rooming houses, and missions who had not been in their present abode for a month or longer.

*Selection of enumerators.*—The Health Survey,<sup>12</sup> being financed as a

<sup>10</sup> Enumeration districts with populations (in 1930) of more than 1,000 but less than 2,000 were divided into 2 subdistricts of equal residential area: those having populations of from 2,000 to 3,000 were divided into 3 sections, and so on.

<sup>11</sup> Persons away from a given household for a month or longer were excluded from the roster of that household, because the informant could not be expected to be cognizant of their illnesses. However, except in the cases specified in the text, such persons (or equivalent persons) would be enumerated in other households.

Schedules and instructions provided for the entry of persons who had gone from the given household to an institution for the care of disease at any time previously (and were still there), but obviously such a record cannot fail to be incomplete. Such persons are excluded from the Health Survey population if they were confined in the institution for the 12 months immediately preceding the canvass. They are, however, included in the illness record.

<sup>12</sup> The States in which the survey was conducted were divided into 5 administrative regions. Each region was assigned to a regional supervisor who had had successful survey experience and who was given training on the schedule and instructions for about 2 weeks before being sent into the field. Each State was assigned to a State supervisor, who was responsible for procurement of space and office equipment, preparation of pay rolls, and accounting.

Each of the local units was placed under the direction of a supervisor. In the larger cities there were one or two assistants, depending on the size of the staff. The enumeration was conducted by groups of from 5 to 8 canvassers working under the direction of squad leaders. A control clerk had charge of the schedules while they were in the local office.

work relief project, drew its canvassing staff from the relief rolls. Through the cooperation of the United States Employment Service and the Works Progress Administration it was possible, for the most part, to select mature persons with previous white-collar work experience. Preference was given to those who had been bookkeepers, teachers, nurses, salesmen, and social workers.<sup>13</sup> Many had had experience on other surveys. Final selection was made on the basis of aptitude tests.<sup>14</sup>

*Methods of securing accuracy of schedule entries.*—Certain procedures carried out for the purpose of obtaining the greatest possible accuracy of schedule entries should be summarized:

(1) Training in the basic principles underlying these instructions was given to the regional supervisors in the central office before they went into the field. Although the local supervisors and assistants could not be brought to a central point for such training, they received careful instructions from the regional supervisors, frequently at a central point.

(2) Systematic training of enumerators for 10 days or longer was practiced routinely.

(3) Each enumerator was furnished with mimeographed instructions setting forth the proper technique of making the interview and the definitions to be followed with respect to each item on the schedule.

(4) To cover unusual cases, a special manual was placed in the hands of squad leaders so that they could intelligently assist the enumerator when uncertainties as to proper entries arose.

(5) A reviewing staff to examine schedules for completeness and consistency was established in each local office in the ratio of 1 editor to 3 enumerators. In the case of unsatisfactory schedules, comments were entered on slips attached to the schedules, which were then returned to the enumerator for additional information. This was obtained by a revisit where necessary.

<sup>13</sup> Twenty percent of the households were enumerated by professional persons (nearly half of whom were teachers); 10 percent by enumerators of the proprietor, manager, or official class; 15 percent by salesmen; 8 percent by accountants; 6 percent by real estate or insurance agents; 28 percent by persons in other clerical occupations; 9 percent by persons classified as nonwhite collar; and 3 percent by persons who had never been employed.

Thirty-seven percent of the households were enumerated by persons who had attended college; 95 percent by persons who had attended high school. Nearly two-thirds of the households were enumerated by persons between the ages of 25 and 45; 14 percent by persons under 25; and 23 percent by persons 45 and over. (The above figures are based on a 0.5 percent random sample of the punched cards for the surveyed households.)

<sup>14</sup> The individuals tentatively selected for assignment to the survey were introduced to it through a discussion of its purposes by the local supervisor. They were then sent home with an abbreviated instruction manual, 2 family narratives (i.e., an imaginary interview), a schedule properly filled from one of the narratives, and a blank schedule to be filled from the other narrative. On the following day the home work was reviewed and the prospective enumerators were asked to fill a second schedule from a third narrative. Those who showed no aptitude for the work were returned to the employment service. Successful candidates were given additional training, were paired and required to fill schedules covering each other's families, and were required to attend a prepared dialogue showing how an interview should be conducted. Following this week of intensive training the canvassers were sent into the field to make trial enumerations. Further training was given to those who required it.



(6) The local supervisors were encouraged to write to the central office when any uncertainties as to the interpretation of the instructions arose. Questions were answered in the form of technical bulletins issued to the whole field staff or of special letters to the individual supervisors.

(7) The earliest schedules from each city were examined critically in the central office to determine whether incorrect forms of entry or inconsistencies were present which might indicate lack of understanding of field instructions. Questionable entries were discussed with the local office and in many cases schedules were returned to illustrate unacceptable entries.

(8) Throughout the survey all schedules were examined in the central office for major misinterpretations of the instructions, and the points were taken up through correspondence with the local offices.

*Completeness of enumeration.*—The support given the survey by the public is indicated by the fact that 98.5 percent of the families which were asked to give information complied with the request, which is as good an attainment as that reached by the last population census, if not a better one.

A check on the completeness of the enumerator's work was made through the use of a control card and a daily record book. Prior to the beginning of the canvass, workers were sent into the field to enter on a small card the address of every building that appeared to be usable for human habitation. These cards were filed in the local office, and later, as each schedule was received from the field, the address was checked against the file. Unoccupied buildings or dwelling units were identified in the enumerator's record book and upon the reported completion of each enumeration district the control clerk compared the unmatched cards with the record book entries. An investigation was made whenever a control card was not accounted for either by a schedule or by a record book entry.

Losses of certain types of persons under the survey definitions have been discussed in connection with the question of representativeness of the sample.

Another aspect of completeness concerns the record of cases of illness among canvassed persons. Exact enumeration of the fact and nature of illness presents much greater difficulties than does the recording of age, sex, and other information of the type obtained in the decennial censuses. Loss of some cases, even among those disabling for a week or more, is therefore inevitable.<sup>15</sup> At the present time, however, the house-to-house canvass, as stated previously, is the only method which is capable of yielding information of the type

<sup>15</sup> Studies of the informant-enumerator interview problem are being carried out by the Health Survey staff. One paper has already been presented on this subject (see Appendix C).

needed—the rates of serious illness and the medical care received in various population groups.<sup>16</sup>

*Verification of diagnoses.*—Enumerators requested the name of the physician who cared for any case of illness, or the hospital for hospitalized cases, and asked permission for the Public Health Service to obtain further medical information from these sources for statistical purposes. Such permission was granted almost without exception. A separate questionnaire, requesting confirmation or change of the diagnosis given by the family and certain supplementary information about the cases, was prepared for each of 13 groups of diagnoses, and was sent to the physician or hospital except in cases where permission was refused. Some 535,000 of these inquiries were mailed and about 400,000 (75 percent) were returned. The number of returned forms could have been increased to 500,000 or more had time and funds permitted a more thorough follow-up. Copies of the death certificates for fatal illnesses reported in the canvass were obtained from local registrars or State health departments in order that the cause of death as stated by the family might be compared with that on the official record.

Special comment is necessary as to the use made of the information received from physicians and hospitals and obtained from death certificates. Many of the illnesses and chronic diseases reported had no medical attendant during the year covered by the survey, and this fact precluded checking the diagnosis. In many instances the physicians did not return the forms, returned them too late for use, or were unable to identify the record.<sup>17</sup> For these and other reasons, medical information was available for only 26 percent of all diagnoses and 35 percent of illnesses disabling for a week and more. On the other hand, when the statements from the family and from the physician could be compared, an agreement of about 90 percent was found in terms of classifications of diagnoses into 15 to 30 groups (table 2).

<sup>16</sup> It has been known since the U. S. census of 1850 that mortality data obtained in house-to-house canvasses are particularly subject to underenumeration. Disappearance of single-person households, breaking up of other households, lack of coverage of orphanages, homes for the aged, and other institutions in which the death rates are particularly high, and the difficulty of establishing the concept of reporting on past members of the household, are some of the factors which result in abnormally low death rates. Since the fatal cases are a small proportion of the total, morbidity rates are not seriously affected by this tendency. Mortality rates based on survey data, on the other hand, are not useful except for special purposes.

<sup>17</sup> The last two of these reasons account for the difference between the percentage of forms returned (75) and the percentage on which a medical diagnosis was received (49) given in table 2.

TABLE 2.—*Extent of agreement between family's and physician's statements of diagnosis*

Percentage of cases on which a medical report was received: <sup>1</sup>

All diagnoses <sup>2</sup> .....	26. 3
All illnesses disabling for a week or longer <sup>3</sup> .....	35. 5
Diagnosis for which a medical report was sent out <sup>2</sup> .....	49. 0

Percentage of matched cases,<sup>4</sup> showing agreement when diagnoses are classified into:

93 diagnosis groups.....	83. 3
28 diagnosis groups <sup>5</sup> .....	90. 4
15 diagnosis groups.....	91. 2
7 diagnosis groups.....	92. 9

<sup>1</sup> Based on 5 percent random sample of case cards, exclusive of orthopedic impairments, hernia, blindness, and deafness. Queries were not sent to physicians for these diagnoses unless they caused disability.

<sup>2</sup> Sole, primary, and contributory diagnoses.

<sup>3</sup> Sole and primary diagnoses.

<sup>4</sup> Matched cases are diagnoses on which both the family's and physician's statements were available. Agreement means that the diagnoses from both sources fall into the same diagnosis group. Figures are based on tabulations for 10 large cities (Birmingham, Boston, Cleveland, Los Angeles, Minneapolis, New York, Portland, Oreg., St. Louis, Salt Lake City, Syracuse).

<sup>5</sup> The percentage distribution according to these 28 diagnosis groups is shown below for matched cases and all others (illnesses disabling for a week or longer, sole or primary diagnoses):

	Matched cases	All others	Difference
All diagnoses.....	100.00	100.00	-----
Communicable diseases.....	13.83	15.83	+2.00
Common communicable diseases of childhood.....	12.36	14.62	+2.26
Other infectious and parasitic diseases.....	1.47	1.21	-.26
Cancer and tumors.....	2.24	1.78	-.46
Diabetes.....	.76	.53	-.23
Rheumatism and allied diseases.....	3.56	3.60	+.04
Cardiovascular-renal diseases.....	7.60	5.95	-1.65
Nervous and mental diseases.....	3.04	3.30	+.26
Diseases of ear and mastoid process.....	1.69	1.13	-.56
Diseases of respiratory system.....	29.55	30.65	+1.10
Tuberculosis (including nonrespiratory).....	.86	.78	-.08
Pneumonia (all forms).....	3.51	2.49	-1.02
Tonsillitis (including tonsillectomies).....	7.24	5.45	-1.79
Other.....	17.94	21.93	+3.99
Diseases of digestive system.....	8.72	7.84	-.88
Appendicitis (including appendectomies).....	3.01	2.71	-.30
Hernia.....	.65	.58	-.07
Diseases of teeth, mouth, and gums.....	.29	.27	-.02
Other.....	4.77	4.28	-.49
Diseases of thyroid gland.....	.41	.35	-.06
Anemia.....	.36	.27	-.09
Hemorrhoids.....	.45	.43	-.02
Varicose veins.....	.26	.24	-.02
Diseases of bladder and urinary passages and male genital organs.....	.90	.67	-.23
Diseases of female genital organs and complications of pregnancy.....	1.61	1.63	+.02
Confinements.....	8.80	9.07	+.27
Skin diseases.....	1.50	1.17	-.33
Accidents.....	9.80	9.63	-.17
Orthopedic impairments.....	1.02	1.81	+.79
Deafness and blindness.....	.10	.29	+.19
All other.....	3.82	3.83	+.01

It is evident that, if rates had been based solely on cases for which a medical report was received, the incidence would have been grossly understated. Furthermore, to have used the physician's reports where available and the family's reports in other cases would have been an inconsistent procedure. On the other hand, it is equally clear that in terms of any broad classification of disease causes, the family's reports in general coincide with the doctor's reports. For all these reasons, most articles in this series are based on reports given by the family, the information from the physician being used as a criterion of the validity of various diagnosis classifications and for special studies. The death certificate diagnoses will be used for intensive studies of fatal cases but, again for consistency, when the fatal and nonfatal illnesses are treated together, the diagnoses used will be taken from the family's report.

*Coding, card punching, and tabulating.*—Coding was done by workers from the relief rolls in a single central office under the immediate direction of a large group of coding supervisors.<sup>18</sup> The supervisors worked under the direction of Public Health Service personnel who had had from 10 to 20 years of experience with similar data. The data were placed on punch cards<sup>19</sup> and tabulated in the usual manner.<sup>20</sup>

#### COMPARISON OF COMPOSITION OF THE SURVEYED POPULATION WITH THAT SHOWN BY THE 1930 CENSUS

As pointed out, the population enumerated in this study constituted about 3.6 percent of the urban population of the United States (1930).<sup>21</sup> The methods employed in securing this sample have been described as well as the exclusions involved in the survey definitions. The composition of the surveyed population in comparison with that of the census urban population is of interest as indicating the degree to which the survey population may be taken as representing urban United

<sup>18</sup> Because of the large scale of coding operations, special precautions were necessary to assure accuracy and consistency. Such precautions included the employment of a large group of supervisors (see Appendix E for list of coding and tabulating supervisors); the employment of section chiefs in semisupervisory positions; the use of mimeographed or written instructions and code tables for all coding; the referral to supervisors of all problems that could not be handled routinely; the routine verification of all operations, including 2 or 3 verifications for the more difficult operations; the selection of the best workers for coding of medical information; and the use of a referral unit of physicians to assure assignment of diagnoses to the proper diagnosis groups (nonmedical coders assigned diagnosis code numbers only when the exact term could be found in the alphabetical index to the diagnosis code).

<sup>19</sup> In order to assure the greatest possible accuracy in preparing the punched cards from the coded data, a series of mechanical verification procedures was adopted for the punching operations. Also, as a final precaution before the cards were used in tabulations, a check was made of about one-fifth of the items punched for each schedule so that possibility of internal discrepancy might be obviated. When a chance inconsistency was found, such as disagreement between the code representing the number of persons per family and the number of individual cards punched for that family, reference was made to the schedule and the error corrected. Equally careful verification and reverification methods were employed throughout the machine tabulation processes.

<sup>20</sup> The magnitude of these operations is indicated by administrative records. Coding of the schedules required 13,000 man-months of work on the part of a staff that reached 1,000 persons at its peak. Punched cards totalled 4,800,000. Tabulating of these cards required about 1,125 man-months.

<sup>21</sup> See Appendix C for Health Survey population by age, color, sex, and income and relief status of the family.

States, but changes between 1930 and the time of the survey (winter of 1935-36) are to be kept in mind.

*Age.*—Comparison of the age distribution of the population studied in this survey with that of the 1930 urban population is given in table 3. The two correspond quite closely, although there is some increase in the percentages at the older ages. The table includes a column giving the percentage distribution for the survey cities (1930 Census). Close agreement with the figures for the whole urban population is indicated.

TABLE 3.—*Percentage distribution by age of the 1930 Census urban population and the National Health Survey population*

Age (years)	Percentage distribution			Age (years)	Cumulative percentage		
	Health survey	1930 Census			Health survey	1930 Census	
		Urban U. S.	Survey cities <sup>1</sup>			Urban U. S.	Survey cities <sup>1</sup>
All ages -----	100.0	100.0	100.0	All ages -----	100.0	100.0	100.0
Under 5 -----	7.0	8.2	8.0	5 and over -----	93.0	91.8	92.0
5-9 -----	8.1	9.0	8.8	10 and over -----	84.9	82.8	83.2
10-14 -----	9.0	8.6	8.4	15 and over -----	75.9	74.2	74.8
15-24 -----	17.8	18.0	18.1	25 and over -----	58.0	56.1	56.6
25-34 -----	17.0	17.3	17.8	35 and over -----	41.0	38.8	38.8
35-44 -----	15.8	15.5	15.8	45 and over -----	25.1	23.2	23.0
45-54 -----	12.1	11.2	11.3	55 and over -----	13.0	12.0	11.7
55-64 -----	7.3	6.9	6.8	65 and over -----	5.7	5.1	4.9
65 and over -----	5.7	5.1	4.9				
Unknown age -----	0.2	0.1	0.1				

<sup>1</sup> For each sampled city the proportion of the 1930 population included was in accordance with the sampling ratio. (See p. 4.)

*Sex ratio.*—There were 92.4 males for each 100 females in the Health Survey population. This is 5.7 below the sex ratio of 98.1 which obtained in the 1930 urban population. Part of the difference may be ascribed to a declining national sex ratio.

*Color.*—The percentage of individuals classified as colored in the Health Survey was 10.1, as against 8.9 in the Census of 1930 (urban).

*Sex, age, and color.*—In table 4 is shown the percentage distribution by sex, age, and color for the Health Survey population and for the 1930 Census (urban) population. Although certain discrepancies may be noted, partly due to changes between 1930 and 1935-36 and partly to exclusions of some transients under the survey definitions (see p. 6), the table indicates that the survey sample was representative of urban United States as to age, sex, and color composition.

*Size of household.*—Distribution of the enumerated households by size shows general uniformity with the urban Census data for 1930 (table 5). "Households" in both instances include unrelated members.

*Family income.*—Comparison of the percentage distribution of families by income in the Health Survey cities with estimates arrived

at by the National Resources Committee<sup>22</sup> is given in table 6. The agreement is quite close.

TABLE 4.—Percentage distribution of Health Survey population and 1930 urban population by sex, color, and age

Color and age (years)	Percentage of persons					
	Both sexes		Male		Female	
	Health Survey	1930 urban	Health Survey	1930 urban	Health Survey	1930 urban
All colors:						
All ages.....	100.0	100.0	48.0	49.5	52.0	50.5
Under 5.....	7.0	8.2	3.6	4.1	3.5	4.0
5-9.....	8.1	9.0	4.1	4.5	4.0	4.5
10-14.....	9.0	8.6	4.5	4.3	4.5	4.3
15-24.....	17.8	18.0	8.3	8.6	9.6	9.5
25-34.....	17.0	17.3	7.9	8.5	9.1	8.8
35-44.....	15.8	15.5	7.6	7.9	8.2	7.6
45-54.....	12.1	11.2	6.1	5.7	6.1	5.5
55-64.....	7.3	6.9	3.5	3.4	3.8	3.5
65 and over.....	5.7	5.1	2.5	2.4	3.1	2.7
Unknown age.....	.2	.1	.1	.1	.1	(1)
White and unknown:						
All ages.....	89.9	91.1	43.4	45.2	46.5	45.9
Under 5.....	6.2	7.4	3.1	3.7	3.0	3.6
5-9.....	7.2	8.2	3.6	4.1	3.5	4.0
10-14.....	8.0	7.9	4.0	4.0	4.0	4.0
15-24.....	16.1	16.3	7.5	7.8	8.6	8.5
25-34.....	15.1	15.5	7.1	7.6	8.0	7.9
35-44.....	14.0	14.1	6.8	7.2	7.2	6.9
45-54.....	11.0	10.3	5.5	5.2	5.5	5.0
55-64.....	6.8	6.5	3.3	3.2	3.6	3.3
65 and over.....	5.3	4.9	2.4	2.3	3.0	2.6
Unknown age.....	.1	.1	(1)	(1)	.1	(1)
Colored:						
All ages.....	10.1	8.9	4.7	4.3	5.4	4.5
Under 5.....	.9	.8	.4	.4	.4	.4
5-9.....	.9	.9	.5	.4	.5	.4
10-14.....	1.0	.7	.5	.3	.5	.4
15-24.....	1.7	1.7	.7	.8	1.0	.9
25-34.....	1.9	1.8	.8	.9	1.1	.9
35-44.....	1.8	1.4	.8	.7	.9	.7
45-54.....	1.1	.9	.5	.5	.5	.4
55-64.....	.5	.4	.2	.2	.2	.2
65 and over.....	.3	.2	.1	.1	.2	.1
Unknown age.....	(1)	(1)	(1)	(1)	(1)	(1)

1 Less than 0.05 percent.

TABLE 5.—Percentage distribution of households by size, Health Survey and urban United States (1930)

Number of persons per household	Health Survey <sup>1</sup>	1930 Census urban <sup>2</sup>	Number of persons per household	Health Survey <sup>1</sup>	1930 Census urban <sup>2</sup>
1.....	7.8	8.0	5.....	11.8	11.6
2.....	26.2	25.1	6-7.....	9.4	10.6
3.....	21.8	22.1	8+.....	3.7	4.3
4.....	19.4	18.1			

<sup>1</sup> Based on 0.5 percent random sample of punched cards.

<sup>2</sup> Excludes quasi-families.

<sup>22</sup> Consumer Incomes in the United States. Their Distribution in 1935-36. National Resources Committee. Government Printing Office, Washington. 1938. Further discussion of correspondence of income data in the two studies will be found on p. 58 of that report.

The comparisons made in this section show general agreement between the make-up of the survey population and that of urban United States (1930).

TABLE 6.—*Percentage distribution of families by income,<sup>1</sup> Health Survey<sup>2</sup> and National Resources Committee<sup>3</sup> estimates*

Income	Health Survey	National Resources Committee estimates	Income	Health Survey	National Resources Committee estimates
All incomes.....	100.0	100.0	\$1,000 to \$2,000.....	37.3	35.3
Under \$1,000.....	46.1	46.6	\$2,000 to \$3,000.....	10.8	11.2
			\$3,000 and over.....	5.9	6.9

<sup>1</sup> Families with known income.

<sup>2</sup> All relief families classified with the group under \$1,000.

<sup>3</sup> From Consumer Incomes in the United States. Their Distribution in 1935-36. National Resources Committee, U. S. Government Printing Office, 1938. P. 6.

### TERMS AND DEFINITIONS

The meaning of terms used in articles reporting the Health Survey findings will, in general, be apparent from the schedule reproduced in Appendix A and from the tables and discussion contained in the various publications. For ready reference purposes, however, a few explanations and definitions are given below.

*The study period.*—The survey year is regarded as the 12 months preceding the day of the visit to any particular family.

Enumeration was started early in October 1935 and completed by March 30, 1936.<sup>23</sup> Hence, information was obtained in the survey on sickness experienced between October 1, 1934, and March 30, 1936. The worst phases of the depression had been passed but widespread unemployment and want still prevailed. In relation to the medical care reported by relief families, it should be noted that the Federal Emergency Relief Administration medical care plan was in operation in numerous cities throughout the Nation during 1934 and the first half of 1935.

*Population base for illness rates.*—Rates of prevalence on the day of the visit and of incidence over the study year are both based on the number of persons in the household at the time of the canvass. Persons born during the study year are, therefore, included in the population base, but not those dying during this period.<sup>24</sup> The illness record of both of these groups is, however, included. Persons in institutions for the care of disease during the entire study year are likewise excluded from the population, but included in the illness record insofar as data were obtained.<sup>25</sup> Exclusions from both population and illness records are listed on p. 6.

<sup>23</sup> One percent of the schedules had been filed by November 30, 1935; 20 percent by December 31; 50 percent by January 31, 1936; and 95 percent by March 14.

<sup>24</sup> For certain purposes (for instance, illness rates for infants) this rule was modified.

<sup>25</sup> The use of a single population base for the several purposes of the survey was adopted for simplicity and because no appreciable error was introduced thereby. It may be observed that the inclusion of infants, who are thus assumed to be under observation for the whole survey year, tends to balance the exclusion of deaths.

*Household, family.*—One schedule was filled for each household or dwelling unit, i. e., for each group of persons or single person living in one abode or dwelling such as a house, apartment, rooming house, dormitory, nurses' home, or room or suite in a hotel. The "household" includes all persons who reside (sleep) in the abode, regardless of relationship. The term "family" applies to all persons in the household related to the head by blood, marriage, or adoption.

*Relief status.*—Families were identified as having received relief, if at any time during the survey year one or more members had had aid such as public assistance,<sup>26</sup> mothers' pension, pension for the blind, or a grant for any similar purpose from public funds administered by the Federal, State, or local government.

*Family income.*<sup>27</sup>—Income is defined to include all salaries, wages, business profits (including those received from boarding and lodging houses), income from boarders and lodgers in private families, and income from investments received during the survey year; it thus represents an approximate net yearly income for the family. Families were not asked to report the exact amount of income, but were asked to locate themselves in one of the classifications shown on the schedule. No allowances were made for income in kind.<sup>28</sup> If a household had been in existence for less than 1 year, the income was prorated on an annual basis. Families which reported the receipt of relief were not asked to specify the amount of income during the year. "Economic status" is used in the reports to cover the two items of income and relief. For the purpose of classifying persons by income, unrelated members of households (servants, roomers, etc.) are assigned to the income group corresponding to that of the family in which they live.

*Occupational class.*—A classification of usual occupation was made in conformity with the schedule developed by Dr. Alba M. Edwards of the Census Bureau. Comparability with Census data was attained by employing similar definitions in the enumeration and by coding the original occupation entries according to the Census code and instructions. The occupation entered on the schedule was the one which a person considered to be his usual occupation. Persons seeking their first jobs were recorded as having "no occupation."

*Workers.*—This term applies to (1) persons employed in private industry and in Government departments, (2) unemployed persons engaged on work relief, and (3) totally unemployed persons seeking work (including those looking for their first jobs). Persons reported to have a chronic disease or permanent impairment which prevented

<sup>26</sup> Includes work relief against a relief budget and employment on work relief projects at security wages for persons taken from relief rolls.

<sup>27</sup> Income was also reported for the "economic unit" (i. e., a group sharing in a common income), but the reports are based on income as reported for the family.

<sup>28</sup> No effort was made to obtain real income for farm families.



them from working or from seeking work are not included among "workers." Employment status was reported as of the day of the visit.

*Age.*—Age is entered as of last birthday.

*Sickness and impairment data.*—The following definitions are of importance in interpreting the significance of the sickness and impairment data.

A *disabling illness* is considered an illness that keeps the person from his work, school, domestic duties, or other usual activities. A person unable to pursue usual activities by reason of disease, accident, or physical or mental impairment is regarded as having a disabling illness. Such illnesses may be due to one or more causes (diagnoses).

Disabling illnesses of 1 day or more were recorded providing the person was still unable to work on the day of the visit. For recovered cases, illnesses of 7 consecutive days or longer were recorded.<sup>29</sup> Classified with the latter for the purpose of the reports are all hospital cases and confinements which had disabled for less than 7 days. Fatal cases are included regardless of the duration of disability.

A second period of disability due to the same cause, occurring within 7 days of the termination of the first case, constituted a relapse. The duration of disability due to a relapse was added to the duration of the original illness.

*Termination of disabling illness* was recorded according to status of an illness on day of visit ("recovered," "still unable to work," "died"). "Recovered" means that the illness, the period of disability, had ended and that the person had become able to resume his usual activities; the term does not imply complete recovery.

*Diagnosis* signifies the nature of an illness. One illness may have more than one diagnosis. If there is only one, it is termed "sole"; if there are two or more, one is termed "primary" and the others "contributory."<sup>30</sup> The primary diagnosis is that which had been associated with the disability for the longest period; or, if a separate period of disability was not specified for any diagnosis, the primary diagnosis is the one which was regarded by the family as the most important cause of the disability.

"*Chronic*" and "*acute*" constitute classifications set up for broad comparisons. Where tabulations are by detailed diagnosis, such classification is based on the nature of the diagnosis. Otherwise, the distribution is made on the basis of the duration of the symptoms. If the symptoms had been observed for 3 months or more, the disease was classified as "chronic"; if not, as "acute."

*Unemployables* are persons reported by the informant to have a chronic disease or permanent impairment which prevented them from

<sup>29</sup> Annual rates of frequency of illnesses disabling for a week or longer include those in which the disability began prior to the study year, but the rates of disability (days per case or per person) are based on disability occurring within the study year.

<sup>30</sup> When one of two diagnoses was merely a symptom of the other, the symptom was disregarded in coding.

## Appendix A

1. FAMILY NAME		2. ADDRESS		3. CITY		4. STATE		(Do Not Write Here)																																																																																																																																																																																							
<b>UNITED STATES PUBLIC HEALTH SERVICE</b>  <b>HEALTH SURVEY</b>  <b>ALL INFORMATION IS STRICTLY CONFIDENTIAL</b>  <b>TO BE USED FOR STATISTICAL PURPOSES ONLY</b>  <b>District</b>		<b>ROSTER</b> (Members of Household) <table border="1"> <thead> <tr> <th>PER-SON'S No.</th> <th>NAME</th> <th>RELATION TO HEAD OF HOUSEHOLD</th> <th>AGE</th> <th>SEX</th> <th>MARITAL STATUS</th> <th>Household Months Last 12</th> <th>COUNTRY OF BIRTH</th> <th>COLLEGE OR</th> <th>EDUCATION</th> <th>EMPLOYMENT STATUS</th> <th>Occupation</th> <th>Industry</th> <th>Age at Birth</th> <th>Age at Death</th> <th>Age at Last Sighting</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> <td>16</td> <td>17</td> <td>18</td> <td>19</td> <td>20</td> </tr> <tr> <td>1</td> <td>(Given)</td> <td>(Last)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>		PER-SON'S No.	NAME	RELATION TO HEAD OF HOUSEHOLD	AGE	SEX	MARITAL STATUS	Household Months Last 12	COUNTRY OF BIRTH	COLLEGE OR	EDUCATION	EMPLOYMENT STATUS	Occupation	Industry	Age at Birth	Age at Death	Age at Last Sighting	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	1	(Given)	(Last)														2																3																4																5																6																7																8																<b>USUAL EMPLOYMENT</b> <table border="1"> <thead> <tr> <th>Occupation</th> <th>Industry</th> </tr> </thead> <tbody> <tr><td>16</td><td>17</td></tr> </tbody> </table>		Occupation	Industry	16	17	<b>FOR PERSONS UNDER 25</b> <table border="1"> <thead> <tr> <th>SMALLPOX</th> <th>DIPHTHERIA</th> </tr> </thead> <tbody> <tr> <td>Case Age</td> <td>Case Age</td> </tr> <tr> <td>20</td> <td>21</td> </tr> <tr> <td>22</td> <td>23</td> </tr> </tbody> </table>		SMALLPOX	DIPHTHERIA	Case Age	Case Age	20	21	22	23	<b>PREVIOUS ATTACKS OF SAME DISEASE</b> <table border="1"> <thead> <tr> <th>Nurse</th> <th>Doctor</th> </tr> </thead> <tbody> <tr> <td>Number of Days Past 12 Months</td> <td>Number of Days Past 12 Months</td> </tr> <tr> <td>38</td> <td>37</td> </tr> <tr> <td>39</td> <td>40</td> </tr> <tr> <td>41</td> <td>42</td> </tr> </tbody> </table>		Nurse	Doctor	Number of Days Past 12 Months	Number of Days Past 12 Months	38	37	39	40	41	42
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(Name and address of sick benefit association)	(What was?)	(Rank)	(Pension or compensation ever received*)	(Place of death)
<p>*Means entry (if required) should be Yes, No, or Unk.</p>				

(Ask if any member of household has any other handicapping disease or condition (in addition to any recorded in cols. 24-42) referring to each of following as suggestive of the kind of thing meant. Enter person's number of numbers having case, check off as asked, if none. Record below facts for each case. Nature of disease to be entered as described by informant.)

[illegible]

54. Has a nurse from any agency made any visits to this home in past 12 months? *	(For what purpose?)	(Name and address of agency (or nurse))

55. (a) Number of years household has been established .....

(b) Number of years in this house .....

(c) Number of years in this city .....

(d) Number of moves from one locality to another in last 10 years .....

(e) Moved from farm within last 10 years? *	
56. (a) House of apartment?	59. ESTIMATED TOTAL FAMILY INCOME FOR LAST 12 MONTHS

(b) If renting, monthly rental	Now 1929	\$5,000 or more \$5,000 but under \$5,000	(Check)

(c) If owned, value now	\$2,000 but under \$3,000
(d) Number of rooms	\$1,500 but under \$2,000

57. Water (check):		City	Other
\$1,000 but under \$1,500			
Less than \$1,000			

65. Toilet (check) _____ Private _____ Communal _____	66. Was relief received in past 12 months? * (Name and address of agency) _____
---	--

Flush outside	
Other	

61. Degree of cooperation (check): Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
 62. Date of visit \_\_\_\_\_ 63. (Person's number and name of informant)

64. Enumerator

(Do not write in this space)

(Do not write in this space)

working or seeking work. The subjective nature of this criterion is recognized.

*Invalidism* is considered continuous disability for a period of 12 months prior to the day of the visit. The inclusion of some persons not *permanently* disabled is balanced, to some extent at least, by the exclusion of persons becoming permanently disabled during the study year.

*Impairments* are permanent handicaps resulting from disease, accident, or congenital defect, including impaired or lost members (termed orthopedic impairments), and serious defects of vision or hearing. Impairments may be either disabling or nondisabling.

*Physicians' care* is attention received from a doctor of medicine, including care in home, office, clinic, or outpatient department, but excluding care in a hospital. The case receiving such care may or may not have been a hospital case.

A *hospital case* is a case which was confined to a hospital for 24 hours or longer. "Hospital" includes any institution for the care of physical or mental disease.

*Private duty nursing care* is considered to be bedside care by a full-time nurse, including care by special nurses in hospital, but not nursing service rendered by the hospital without special charge. Where the patient was attended by both day and night nurses, 2 days of care were recorded for each attended day. No attempt was made to distinguish between registered and nonregistered nurses.

*Nursing visits* are visits by nurses from any agency, including service from private duty nurses secured on an hourly basis.

These definitions agree with those set up for the enumerators, but the point should be made that, despite all efforts to lay down and employ exact definitions, the interpretation of these terms tends to vary somewhat with the enumerator and the informant.

## FINDINGS

There have already been published a series of bulletins, listed in Appendix D, giving preliminary findings of the survey. It is now intended to report the results of the survey in considerable detail in a number of articles to be published in the PUBLIC HEALTH REPORTS or as special monographs. Subjects of reports to be issued in the near future include: Broad results, illness and medical care in special age groups (children, youths, aged); illness and disability in relation to economic status, unemployment, and dependency; disability among male and female workers; frequency of accidents (home, public, and occupational), and specifically of automobile accidents; prevalence and causes of orthopedic impairments; degree of adequacy of maternal services; housing conditions and sanitary facilities.

## Appendix B

*The 88 Health Survey cities arranged according to region, city size group, and State, together with the number of households enumerated in each*

CITIES OF 500,000 OR MORE POPULATION<sup>1</sup>

Northeast		North Central		South		West	
City	Households enumerated	City	Households enumerated	City	Households enumerated	City	Households enumerated
Boston, Mass.	20,808	Chicago, Ill.	38,501	(2)		Los Angeles, Calif.	26,297
Buffalo, N. Y.	24,055	Detroit, Mich.	21,359				
New York, N. Y.	46,281	St. Louis, Mo.	24,116				
Philadelphia, Pa.	32,360	Cleveland, Ohio	31,993				
Pittsburgh, Pa.	20,391	Total	115,999				
Total	154,895						

CITIES OF 100,000 TO 500,000<sup>1</sup>

Northeast		North Central		South		West	
City	Households enumerated	City	Households enumerated	City	Households enumerated	City	Households enumerated
Fall River, Mass.	10,481	Flint, Mich.	4,826	Birmingham, Ala.	11,172	Oakland, Calif.	8,361
Newark, N. J.	13,999	Grand Rapids, Mich.	5,112	Atlanta, Ga.	10,737	Portland, Oreg.	10,399
Trenton, N. J.	7,580	Minneapolis, Minn.	12,295	New Orleans, La.	13,192	Salt Lake City, Utah	7,755
Syracuse, N. Y.	12,827	Cincinnati, Ohio	12,549	Dallas, Tex.	10,898	Seattle, Wash.	8,794
		St. Paul, Minn.	12,899	Houston, Tex.	11,738	Spokane, Wash.	8,127
Total	44,887	Columbus, Ohio	11,068	Richmond, Va.	12,352	Total	44,316
		Total	58,739	Total	70,279		

CITIES OF 25,000 TO 100,000<sup>2</sup>

Northeast		North Central		South		West	
City	Households enumerated	City	Households enumerated	City	Households enumerated	City	Households enumerated
Pittsfield, Mass.	11,951	Port Huron, Mich.	8,295	Montgomery, Ala. <sup>1</sup>	9,742	Salem, Oreg.	8,142
Lebanon, Pa.	6,412	Springfield, Mo.	10,630	Monroe, La.	6,985		
		Lima, Ohio	11,283	Amarillo, Tex.	11,091		
Total	18,363	Total	36,228	Wichita Falls, Tex.	10,793		
				Total	38,611		



## 20

\$1,000 to \$1,500.....	511,693	38,011	42,298	44,673	89,006	96,413	82,131	58,833	34,540	25,306	482
\$1,500 to \$2,000.....	389,662	24,135	28,975	32,501	67,002	71,242	67,547	49,318	27,063	17,750	329
\$2,000 to \$3,000.....	279,691	14,472	18,562	21,766	48,186	49,612	49,835	38,138	21,240	13,481	489
\$3,000 to \$5,000.....	103,460	4,631	6,297	7,873	19,730	18,557	19,215	16,803	9,995	6,129	200
\$5,000 and over.....	94,426	2,688	3,068	3,318	8,320	7,625	8,417	8,196	5,320	3,584	186
Unknown income.....	94,767	3,614	4,048	5,935	21,309	15,771	13,249	13,190	8,895	6,959	1,197
Male:											
All incomes.....	1,085,400	78,267	90,241	100,144	188,582	176,610	170,610	138,194	81,843	59,886	1,023
Relief.....	178,966	18,347	21,125	23,042	33,588	31,733	31,753	18,950	11,236	9,156	36
Nonrelief under \$1,000.....	218,273	16,023	16,881	18,853	37,948	34,512	31,176	26,199	18,483	17,990	207
\$1,000 to \$1,500.....	248,544	19,220	21,456	22,441	40,926	46,040	41,068	29,739	16,378	11,221	156
\$1,500 to \$2,000.....	187,803	12,314	14,552	10,141	31,706	33,104	33,523	25,309	13,206	7,842	98
\$2,000 to \$3,000.....	133,063	7,340	9,298	10,011	22,891	22,891	24,393	19,443	10,641	6,060	108
\$3,000 to \$5,000.....	52,567	2,330	3,275	3,969	9,120	8,355	9,012	8,453	5,126	2,869	58
\$5,000 and over.....	22,470	879	1,350	723	3,532	3,039	3,660	3,909	2,653	1,703	42
Unknown income.....	43,114	1,813	2,325	2,986	8,971	7,349	6,025	6,192	4,120	3,045	318
Female:											
All incomes.....	1,164,595	75,883	88,758	99,688	214,718	200,845	180,911	138,119	89,064	73,968	2,661
Relief.....	180,319	17,817	20,691	22,844	33,939	30,619	23,919	17,585	10,398	9,442	65
Nonrelief under \$1,000.....	246,358	16,337	16,897	18,887	44,272	38,368	34,279	23,701	23,737	24,047	493
\$1,000 to \$1,500.....	283,149	18,791	20,843	22,252	43,190	38,373	41,063	29,094	18,162	14,085	326
\$1,500 to \$2,000.....	198,249	11,821	14,423	10,422	33,990	38,138	34,024	24,009	13,857	9,908	331
\$2,000 to \$3,000.....	142,028	7,132	9,264	10,765	25,295	27,134	25,442	18,695	10,599	7,431	281
\$3,000 to \$5,000.....	56,863	2,321	3,022	3,904	10,010	10,202	10,203	8,350	4,899	3,260	142
\$5,000 and over.....	26,956	863	1,368	1,625	4,788	4,586	4,737	4,287	2,667	1,881	144
Unknown income.....	51,663	1,801	2,320	2,979	12,358	8,425	7,224	6,998	4,775	3,914	879
Both sexes:											
All incomes.....	252,396	21,503	23,771	24,579	43,069	47,846	44,004	26,695	11,847	8,555	527
Relief.....	93,612	10,267	11,243	11,240	15,511	14,216	14,186	9,000	4,238	3,489	132
Nonrelief under \$1,000.....	114,047	8,562	9,256	9,638	19,859	24,376	20,988	12,625	5,295	3,778	260
\$1,000 to \$1,500.....	26,517	1,728	2,125	2,348	4,352	3,852	3,295	3,209	1,320	966	62
\$1,500 to \$2,000.....	8,299	423	563	741	1,416	1,063	1,068	1,110	462	251	21
\$2,000 to \$3,000.....	3,372	189	232	271	582	733	723	423	200	97	13
\$3,000 to \$5,000.....	862	20	27	20	194	221	178	118	52	24	2
\$5,000 and over.....	852	12	8	7	135	960	225	120	47	22	1
Unknown income.....	4,835	282	317	298	1,020	780	879	592	233	198	36
Male:											
All incomes.....	116,592	10,947	11,676	11,932	18,114	20,235	20,547	13,346	5,804	3,750	241
Relief.....	43,667	5,193	5,458	5,458	6,849	6,796	6,278	4,375	2,028	1,568	72
Nonrelief under \$1,000.....	52,100	4,393	4,562	4,659	7,979	10,371	9,802	6,000	2,591	1,649	108
\$1,000 to \$1,500.....	13,013	1,897	1,991	1,149	1,951	2,389	2,729	1,700	729	286	29
\$1,500 to \$2,000.....	4,997	225	278	384	640	755	840	600	239	110	6
\$2,000 to \$3,000.....	1,591	90	119	126	229	326	325	219	115	38	4
\$3,000 to \$5,000.....	253	6	10	7	57	70	62	47	17	13	1
\$5,000 and over.....	253	5	1	2	31	88	68	35	18	0	1
Unknown income.....	2,181	148	162	147	378	442	353	304	117	80	20

Colored





## Appendix D

### LIST OF PRELIMINARY RELEASES

DIVISION OF PUBLIC HEALTH METHODS, NATIONAL INSTITUTE OF HEALTH, UNITED STATES PUBLIC HEALTH SERVICE, WASHINGTON, 1938

#### Introductory Bulletin

Significance, scope, and method of a Nation-wide family canvass of sickness in relation to its social and economic setting.

#### Sickness and Medical Care Series

- Bulletin 1. An estimate of the amount of disabling illness in the country as a whole.
- Bulletin 2. Illness and medical care in relation to economic status.
- Bulletin 3. Accidents as a cause of disability.
- Bulletin 4. The prevalence and causes of orthopedic impairments.
- Bulletin 5. Adequacy of urban housing in the United States as measured by degree of crowding and type of sanitary facilities.
- Bulletin 6. The magnitude of the chronic disease problem in the United States.
- Bulletin 7. Illness among employed and unemployed workers.
- Bulletin 8. Maternal care in Michigan—a study of obstetric practices.
- Bulletin 9. Disability from specific causes in relation to economic status.
- Bulletin 10. Blindness—amount, causes, and relation to certain social factors.
- Bulletin 11. Pneumonia in urban United States: Frequency, severity, and medical care.

#### Population Series

- Bulletin A. Families distributed by income during the survey year.
- Bulletin B. Families classified by occupational class of the head.
- Bulletin C. The relief and income status of the urban population of the United States, 1935.
- Bulletin D. Characteristics of the urban unemployed.
- Bulletin E. Color, sex, and age of the population enumerated.

#### Hearing Study Series

- Bulletin 1. Significance, scope, and method of a clinical investigation of hearing in the general population.
- Bulletin 2. Preliminary analysis of audiometric data in relation to clinical history of impaired hearing.
- Bulletin 3. Prevalence of aural pathology and clinical history of impaired hearing among males and females of various ages.
- Bulletin 4. Normal hearing by air and bone conduction.
- Bulletin 5. Normal hearing for speech at each decade of life.
- Bulletin 6. Sex differences and age variations in hearing loss in relation to stage of deafness.
- Bulletin 7. Generalized age and sex trends in hearing loss.

## Appendix E

### NATIONAL HEALTH SURVEY STAFF<sup>1</sup>

George St. J. Perrott, *Project Director*

Clark Tibbitts, *Field Director*

Rollo H. Britten, *in Charge of Analysis*

#### RESEARCH STAFF

Beasley, Willis C.	Karpinos, Bernard D.	Phillips, F. Ruth
Clark, Arch B.	Krassovsky, Collerohe	Rein, Gerald N., M. D.
Fitzgerald, James S.	Lienau, Carl C.	Revell, Kenneth W.
Goddard, Jennie C.	Luykx, H. M. C.	Seeley, Burton D.
Hailman, David E.	McPherson, James L.	Shannon, Robert D.
Holland, Dorothy F.	Ogburn, Howard R.	

#### TECHNICAL ASSISTANTS

Allen, Maxine P.	Cripps, Charles	Lewis, Ruth L.
Bauer, Frank C.	Derry, J. Robert	Richie, Eleanor L.
Beckham, T. Ashby	Hayes, Grant	Scheer, Michael J.
Billows, Owen C.	Huffman, Ruby	Socha, Edmund S., M. D.
Block, Louis	Kamin, Louis E., M. D.	Taff, Melville A., Jr.
Cheney, Bess A.	Kaplan, Mae P.	Welch, Lily V.
Cohen, Zeldon S.		

#### ADMINISTRATIVE CHIEFS

Andrews, James A.	Duerr, W. Ludwig	McPherson, James L.
Balderston, Wm. S.	Dutton, Lillian B.	Ogburn, Howard R.
Brown, J. E.	McGill, Kenneth H.	

#### CONSULTANTS

Bishop, E. L., M. D.	Kiser, Clyde V.	Spencer, R. R., M. D.
Collins, Selwyn D.	Palmer, Carroll E., M. D.	Stouffer, Samuel A.
Falk, I. S.	Reed, Lowell J.	Sydenstricker, Edgar
Fletcher, Harvey	Sasuly, Max	Thurstone, Louis L.
Frost, Wade, M. D.	Sinai, Nathan	Wiehl, Dorothy G.
Hoge, V. M., M. D.		

#### REGIONAL SUPERVISORS

Beasley, Willis C.	Klem, Margaret C.	Morrison, Elizabeth K.
Hailman, David E.	McGill, Kenneth H.	Steepe, Miriam
Hedrich, A. W.		

<sup>1</sup> Acknowledgment is also made to the other members of the staff and to the 150 State and local supervisors, whose names it has not been possible to give for lack of space.

# Annotated Bibliography 1936-50

## INTRODUCTION

REFERENCES to published material presenting or making significant use of the data from the National Health Inventory and National Health Survey of 1935-36 are classified below in 16 sections which correspond, in general, to the titles of the separate groups of studies included in the Nation-wide canvass of health conditions and health facilities.

Within each section the references are arranged alphabetically, by name of the senior author. The brief annotations indicate the scope and focus of the paper cited.

## DESCRIPTIONS OF THE SURVEY

**Collins, Selwyn D.** *The Sickness Surveys: Types, History, and Some Results.* In *Administrative Medicine*. Haven Emerson, M.D., editor. New York, Thomas Nelson & Sons, 1941. Ch. 12, pp. 185-213.

Discusses the general history, purpose, and method of sickness surveys, with an explanation of the difference between the prevalence survey and the incidence survey. Describes (pp. 205-210) the National Health Survey and summarizes its findings. Has an extensive bibliography. In the revised edition, issued in 1951, chapter 29 (pp. 511-535) includes a brief mention of the National Health Survey on p. 518.

**Cumming, Hugh S., M. D.** *Chronic Disease as a Public Health Problem.* *Milbank Memorial Fund Quarterly* 14: 125-131, March 1936.

Describes the origin and background of the National Health Survey, particu-

larly as they are related to the need for more information about the problem of chronic disease in the general population. Discusses the purpose and scope of the Survey and some of the methods used to collect information, specifically the house-to-house canvass and the inventory of public health and medical facilities.

**Lienau, C. C.** *Selection, Training, and Performance of the National Health Survey Field Staff.* *American Journal of Hygiene* 34, No. 3, Sec. A: 110-132, November 1941.

Describes the methods of selecting, training, and organizing the enumerating staff of the National Health Survey, and the tests which were given to estimate general abilities and special achievement in the technique of filling out the schedule. Results of these tests are related to education, sex, age, and previous occupation of the enumerators, and test results and personal qualities are associated with systematic differences found among enumerators in reporting on number of persons per household and number

of illnesses per household. Shows that, in general, "superior" enumerators (female teachers, accountants, auditors, and bookkeepers and secondly, males of similar occupation) reported one-third more illnesses than the "average" enumerator. Includes 12 analytical tables.

**Mountin, Joseph W.** *Business Census of Hospitals.* *Hospitals* 10: 19-21, November 1936.

A description of the Business Census of Hospitals and its relation to the National Health Survey. Includes an explanation of the origin and purpose of the Hospital Census, the type of information asked for on the questionnaires, and the plans for treatment and interpretation of data. Points out the additional information concerning adequacy of facilities which would be available through consolidation of Hospital Census data with National Health Survey data for the surveyed counties.

**Statements by the American Medical Association and Dr. Thomas Parran Submitted to a Subcommittee of the Committee on Education and Labor, United States Senate.** *In To Establish a National Health Program, Hearings . . . on S. 1620.* 76th Cong., 1st Sess. Part 2, May 25 and 26, and June 1, 1939; Part 3, June 2 and 29, and July 13, 1939. Washington, D. C., Government Printing Office, 1939.

The statement by the American Medical Association (Part 2, pp. 468-475) criticizes the methods used in the house-to-house canvass of sickness made by the National Health Survey. Principal points of criticism are: the methods of collecting data, the representativeness of the sample surveyed, the definition and verification of illness, and the validity of data on medical care received.

The statement by Dr. Parran (Part 3, pp. 697-701) is a discussion of techniques and findings prepared as a point-by-point answer to the criticism of the Survey by the American Medical Association.

**Tibbitts, Clark, and Ogburn, H. R.** *The National Health Survey; Collection and Use of Family Income Data.* *In Studies in Income and Wealth, Vol. 5: Income Size Distributions in the United States, Part II, pp. 13-1—13-43.* New York, Conference on Research in Income and Wealth of the National Bureau of Economic Research, 1943. Processed.

A report on the method used in making the National Health Survey. Gives detailed descriptions of the sampling, enumerating, and tabulating procedures employed and defines and interprets terms used on the schedule. Discusses incompleteness of enumeration of households and failure to report all income and the influence of both these factors on the validity of the findings. Includes an appendix containing detailed information pertaining to the punching, classifying, cross-classifying, and tabulating of the data.

**U. S. Treasury Department, Public Health Service.** *Annual Report of the Surgeon General . . . 1936, 1937, 1938.* Washington, D. C., Government Printing Office, 1936, 1937, 1938.

Progress reports on the National Health Inventory are included in the annual reports of the Surgeon General for the 3 years 1936, 1937, 1938. A detailed description of the various parts of the project and the objective of each part is given in the 1936 report (pp. 39-42). Briefer accounts appear in the 1937 report (pp. 66-68) and the 1938 report (pp. 70-71).

## GENERAL ILLNESS FINDINGS

**Britten, Rollo H.; Collins, Selwyn D.; and Fitzgerald, James S.** *The National Health Survey; Some General Findings as to Disease, Accidents, and Impairments in Urban Areas.* *Public Health Reports* 55: 444-470, March 15, 1940. Reprint No. 2143.

Summarizes data from the National Health Survey on disease, accidents, and impairments and gives general illness rates for diseases disabling for a week or longer, for chronic diseases, and for various specific diseases. Annual frequency rates for disabling diseases are shown by age group, by family income status, and by employment status of the family head. The discussion covers disability from chronic disease and the percentage distribution by age of persons suffering from chronic illness; the prevalence and cause of specified orthopedic impairments; and the prevalence of blindness. Accidents causing disabling illness are discussed by place of occurrence and means of injury. Includes more than 20 tables and charts.

**Freedman, Ronald.** *Health Differentials for Rural-Urban Migration.* *American Sociological Review* 12: 536-541, October 1947.

A study of the health of the recent rural-urban migrants remaining in the city, based on records of the National Health Survey. Presents evidence to show that rural-urban migrants are less healthy than the urban population, and discusses the various limitations of the basic data which might have a bearing on the results. Among the limiting factors considered are income, age, migration for purpose of using urban medical facilities, Negro disability rates, and the fact that the data cover only residual, rather than total, migration.

**Holland, Dorothy F., and Altenderfer, Marion E.** *Sickness in a Metropolitan Community—the Results of a Health Survey of New York City.* Washington, D. C., U. S. Public Health Service, 1946. 161 pp. Processed.

Presents results of the National Health Survey in New York City, based on records of 182,036 persons in 48,256 families, both white and Negro, obtained in house-to-house canvass. Gives rates for fre-

quency and duration of disabling illness, both acute and chronic, with variations for age and sex and for economic status, together with illustrative figures and tables. The analysis of medical services received includes data for home, office, or clinic care by a medical practitioner, calls by a nonmedical practitioner, and hospital care. Annual frequency rates of disabling illness according to medical category and the corresponding medical services received are shown for both sexes with variations for age and income. Thirty-four pages of appendix tables supplement the numerous tables and figures in the text.

**Holland, Dorothy F., and Perrott, George St. J.** *Health of the Negro. Part II. A Preliminary Report on a Study of Disabling Illness in a Representative Sample of the Negro and White Population of Four Cities Canvassed in the National Health Survey, 1935-1936.* *Milbank Memorial Fund Quarterly* 16: 16-38, January 1938.

Analyzes illness records of 30,652 Negroes and 140,263 white persons canvassed simultaneously in Atlanta, Dallas, Newark, and Cincinnati during the National Health Survey. Reveals a higher disability rate for Negroes than for white persons, due primarily to chronic diseases, although higher disabling illness rates were found for Negroes for all disease groups. As health status of Negroes in the nonrelief group was better than that of poorer Negroes, concludes that the higher disability rate found among Negroes is caused primarily by low economic status rather than by inherent racial characteristics. Includes numerous figures and tables.

**National Health Conference, July 18, 19, 20, 1938, Washington, D. C.** [called by] the Interdepartmental Committee to Coordinate Health and Welfare Activities. *Proceedings.* Washington, D. C., Government Printing Office, 1938. 163 pp.

Called at the request of the President by the Interdepartmental Committee to Coordinate Health and Welfare Activities, the National Health Conference considered the recommendations of the Technical Committee on Medical Care (appointed to draft a national health program by the Interdepartmental Committee with the instruction to study the results of the National Health Survey and to correlate them with all other available data on the subject). The report of the Technical Committee, which makes use of Survey data particularly in the sections on hospital facilities and medical care for the medically needy, is printed in full in the Proceedings, together with the discussion of the program by the delegates. On pp. 81-82 of the Proceedings is a description by James E. Paullin, M. D., of the Georgia Rural Health Survey conducted in conjunction with the National Health Survey in 16 rural Georgia counties by the Medical Association of Georgia and the State Department of Health.

A summary of the recommendations and discussion and the research on which they were based was issued under the title, **The Nation's Health; Discussion at the National Health Conference, July 18, 19, 20, 1938, Washington, D. C.** Government Printing Office, 1939. 116 pp.

Other publications by the Committee are: **Interdepartmental Committee to Coordinate Health and Welfare Activities, Technical Committee on Medical Care. A National Health Program, Report of the Technical Committee . . . 1938.** Washington, D. C., Government Printing Office, 1939. 37 pp. **Interdepartmental Committee to Coordinate Health and Welfare Activities, Technical Committee on Medical Care. The Need for a National Health Program: Report of the Technical Committee. . . .** Washington, D. C., The Interdepartmental Committee, 1938. 36 pp. Processed.

**National Health Survey, 1935-1936. An Estimate of the Amount of Disabling Illness in the Country as a Whole. Pre-**

**liminary Reports, Sickness and Medical Care Series, Bulletin 1.** Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938 (Revised 1939). 8 pp. Processed.

Summarizes the figures obtained in the National Health Survey for approximately 2,300,000 persons as to frequency, severity, and cause of reported illness or impairment, and gives frequency rate, severity rate, and disability rate by age and broad diagnosis groups. Projects these rates into estimates for the total population.

**Perrott, George St.J., and Holland, Dorothy F. The Need for Adequate Data on Current Illness Among Negroes.** *Journal of Negro Education* 6: 350-363, July 1937.

Preliminary data from the National Health Survey for 16 rural counties in Georgia are drawn on in this presentation of the need for better reporting of morbidity among Negroes. Percentages of white persons and Negroes with disabling illness from the 16 Georgia counties are compared with similar percentages from surveys of the Metropolitan Life Insurance Co. Disabling illness rates are also shown for Georgia white and Negro families according to total annual family income.

**Rusk, Howard A., M. D., and Taylor, Eugene J. Physical Disability: a National Problem.** *American Journal of Public Health* 38: 1381-1386, October 1948.

Estimates the number of persons in the United States suffering from specific kinds of physical handicaps and impairments and presents the estimates for each category of impairment, together with the source of the figures used. National Health Survey data are considered basic, and are used as specific source for several of the estimates.

Sanders, Barkev S., and Federman, David. **The Prevalence of Disability Recorded Through Four Monthly Sample Surveys.** *Social Security Bulletin* 6: 5-11, August 1943.

Concludes with a discussion of the fact that results of the four sample surveys indicate a rate of disability only half as great as that found by the National Health Survey. Attributes the disagreement to differences in the definition of disability and in the time and scope of the surveys. When allowance is made for all factors, the results are considered roughly comparable.

Woolsey, Theodore D. **Estimates of Disabling Illness Prevalence in the United States, Based on the February 1949 Current Population Survey.** *Public Health Reports* 65: 163-184, February 10, 1950. Reprint No. 2995.

The appendix to this article includes a comparison of the results of the 1949 current population survey with those of the National Health Survey. Because of lack of comparable tabulations in the two surveys, comparability is felt to be limited to data from eight cities showing prevalence of disabling illness by sex and age for white urban residents. The comparisons are considered to show a reasonable consistency between the two sets of findings.

## ILLNESS IN RELATION TO SOCIO-ECONOMIC STATUS

Amidon, Beulah. **Who Can Afford Health?** Public Affairs Pamphlet No. 27. New York, Public Affairs Committee, 1939. 31 pp.

A report on the National Health Survey which describes how it was made, its purpose and extent, and its major findings. Particularly emphasizes the economic aspects of the findings, which show that

low-income groups in the population are sick more often and longer than those in higher income groups, and that they receive less medical, nursing, and hospital care. Points out public responsibility for better distribution of medical services and reviews the proposals for improving the situation made by the National Health Conference in 1938.

Dean, Archibald S., M. D., and Haenszel, William M. **Milk Consumption in Buffalo.** *Statistical Survey Supplement* (University of Buffalo Bureau of Business and Social Research) 13: 1-11, March 1938.

Reports on a special survey of milk consumption in Buffalo made in conjunction with the National Health Survey and the Communicable Disease Survey and involving 26,845 families comprising 102,641 individuals. Gives daily milk consumption rate for fluid milk, for canned milk, and for both combined, and shows that milk consumption varied directly with family income and inversely with family size. Discusses differences in consumption rates in relation to different geographic sections of the city and the rates for infant mortality and reported tuberculosis cases for those sections. Includes numerous tables and charts.

Downes, Jean. **Social and Environmental Factors in Illness.** *Milbank Memorial Fund Quarterly* 26: 366-385, October 1948.

Discusses the relationship of sickness to various social and environmental conditions, such as age, race, income, crowding, rural-urban migration, and the presence of chronic disease in either the father or the mother as a factor in the frequency of illness among the children. Bases the discussion of the relationship of illness to migration, race, income, and crowding on data from the National Health Survey. Has 13 illustrative figures.



Goddard, Jennie C. Comparison of Occupational Class and Physicians' Estimate of Economic Status. *Public Health Reports* 54: 2159-2165, December 8, 1939. Reprint No. 2115.

Compares attending physicians' estimates of family's economic status, as reported for approximately 10,000 families in the Michigan study of maternal care, with occupation of the father as reported on birth certificates. Shows that classification of families by father's occupation corresponds to differences in economic status as estimated by the physician. Cites similar results when families enumerated in the general population are classified by income and by occupations of the family head. Concludes that occupational class of the head of the family may be considered a useful index of the socioeconomic status of the family.

Goslin, Ryllis, and Goslin, Omar. The Health of a Nation. *Scholastic* 34: 15-S-17-S, February 18, 1939.

Largely devoted to a report of the findings of the National Health Survey. Stresses the relation between low incomes and illness.

Kent, Constance. The Nation's Sick-List. *American Federationist* 46: 490-491, May 1939.

The third in a series of six articles having the general title, The Wage Earner's Stake in Health, prepared for the Workers' Education Bureau. National Health Survey findings are presented in terms of national estimates of prevalence of sickness and a discussion of medical care, its receipt, cost, and percentage distribution among income groups.

National Health Survey, 1935-36. *Monthly Labor Review* 46: 664-671, March 1938.

A description of the purpose, nature, and method of the National Health Sur-

vey and a summary of its principal findings as to extent of disabling illness and the relation of economic status to illness and the receipt of medical care.

National Health Survey, 1935-1936. Disability From Specific Causes in Relation to Economic Status. Preliminary Reports, Sickness and Medical Care Series, Bulletin 9. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. 13 pp. Processed.

Discusses the relation between the economic status of surveyed families and the per capita volume of disability from specific causes. Separate tables show the ratio—for specific income groups to the highest income group—of disability from infectious diseases, degenerative diseases, rheumatism, tuberculosis, nervous diseases, respiratory diseases, digestive diseases, accidents, and orthopedic impairments. Concludes that the data show a definite relation between economic status and volume of disability.

National Health Survey, 1935-1936. Illness and Medical Care in Relation to Economic Status. Preliminary Reports, Sickness and Medical Care Series, Bulletin 2. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938 (Revised 1939). 7 pp. Processed.

Discusses family income in relation to frequency and severity of illness and the receipt of physicians' services, nursing care, and hospital care. Includes 7 tables giving supporting statistical material.

National Resources Committee. Consumer Incomes in the United States, Their Distribution in 1935-36. Washington, D. C., Government Printing Office, 1938. 104 pp.

A report based primarily on the Study of Consumer Purchases, a Works Progress Administration project conducted by the

Bureau of Labor Statistics of the Department of Labor and the Bureau of Home Economics of the Department of Agriculture. The findings of the study were compared with data from the National Health Survey, the results of the comparison being presented principally on pp. 58-59; comparisons of income distributions for single individuals are found on pp. 69-70. Data on relief status of families and single individuals were derived partly from National Health Survey findings (pp. 73-74, 78). The comparisons show close similarity in the variations in distribution of income in different geographic regions and types of community, though the National Health Survey income distributions were consistently lower than those from the Study of Consumer Purchases. The disagreement is attributed to differences between the surveys in definition of income, in family classification, and in period of time covered by the surveys.

**Perrott, George St.J. Health Problems of Low Income Families.** *Health Officer* (U. S. Public Health Service) 2: 488-495, February 1938.

Compares results of earlier surveys made by the Public Health Service, Federal Emergency Relief Administration, other agencies, and individuals with those of the National Health Survey and shows that all reveal a concentration of disease, disability, and death in the population group on relief or with income barely above the relief level. Points to lack of adequate medical services for this population group in the areas of physicians' attendance, nursing care, surgery, and hospitalization as evidence of need for expansion in the Nation's preventive health services. Cites need for improved statistical reporting in health fields.

## ILLNESS IN THE PRODUCTIVE AGES

**Dorn, Harold F. A Disability Table for Urban Workers.** *Public Health Reports* 57: 1761-1775, November 20, 1942. Reprint No. 2423.

Discusses the findings of the National Health Survey as to disabling illnesses of urban workers aged 15-64, and compares them with findings of certain insured groups. Explains the methods used in compiling a disability table for non-fatal illnesses among urban workers, by sex, and states reasons for concluding that disability is underreported in the National Health Survey.

**Falk, I. S.; Reed, L. S.; and Sanders, B. S. Some Problems in the Formulation of a Disability Insurance Program.** *Law and Contemporary Problems* 6: 645-665, Autumn 1939.

Bases the discussion of need for a disability insurance program on the extent of disability in the United States, particularly among gainfully employed workers, as revealed by the National Health Survey. Contrasts the Survey findings with British, Scotch, and German experience of amount of disability under national insurance systems. Estimates the annual days of compensable disability per male in ages 16-64 with varying waiting and maximum-benefit periods and contrasts the estimates with experienced volume of disability in two American voluntary insurance groups and in various foreign countries.

**Falk, I. S., and Sanders, B. S. The Prevalence of Disability in the United States with Special Reference to Disability Insurance.** *Social Security Bulletin* 4: 2-8, January 1941.

Uses adjusted National Health Survey data on disability to estimate the number of temporarily and permanently disabled persons in the United States and in the productive ages 16-64, and compares these figures with the amount of disability found under various sickness insurance systems. Estimates the amount of compensable disability, both temporary and permanent, to be found under a specified insurance system, allowing for the factors of length of waiting period

and rate of benefit. Also gives estimates of the amount of temporary and permanent disability to be anticipated in approximately 30-40 years among workers insured under the Federal old-age and survivors insurance program.

**Falk, I. S.; Sanders, Barkev S.; and Federman, David.** *Disability Among Gainfully Occupied Persons; an Introduction to Disability Insurance Statistics.* Bureau Memorandum 61. Washington, D. C., Federal Security Agency, Social Security Board, Bureau of Research and Statistics, 1945. 60 pp.

A presentation of general background material pertinent to consideration of the question of disability protection through social insurance. Describes the nature of the disability risk, using findings derived from the National Health Survey to show prevalence and causes of disability in the United States. Discusses the influence of age, sex, employment status, and income status on the disability rate, illustrating the discussion of these factors with tables derived from National Health Survey data.

**Hailman, David E.** *Health Status of Adults in the Productive Ages.* *Public Health Reports* 56: 2071-2087, October 24, 1941. Reprint No. 2327.

Discusses the health status of men and women in the productive ages, 20-64, in relation to employment status. Projects the ratios for various degrees of sickness and disability in specific age groups found by the National Health Survey to the total population to provide probable totals of men in the age groups 20-34, and 35-64, and of women in these age groups, classified in 7 categories according to severity of disability. Compares figures for the men in age group 20-34 with Selective Service data from the First World War. Discusses the relative prevalence of specific chronic diseases and impairments among the two age groups of men and women.

**Hailman, David E.** *The Prevalence of Disabling Illness Among Male and Female Workers and Housewives.* *Public Health Bulletin* 260. Washington, D. C., Federal Security Agency, U. S. Public Health Service, National Institute of Health, 1941. 40 pp.

Compares the rates of illness found by the National Health Survey in three groups of adults—male workers, female workers, and housewives. Analysis for these groups is made by employment status, by occupation, by specific diseases, and by age. Shows that illness rates were higher among females than males except for certain diseases. Includes 18 text figures and tables and an appendix of 11 tables.

**National Health Survey, 1935-1936.** *Illness Among Employed and Unemployed Workers.* Preliminary Reports, Sickness and Medical Care Series, Bulletin 7. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. [13] pp. Processed.

Discusses the data obtained in the National Health Survey showing that illness tends to be concentrated among the unemployed and those in the low-income groups. Tables show proportion of persons disabled on day of canvass as related to sex and age, and by type of illness, employment status, and income and relief status of family.

**Parran, Thomas.** *Illness and Medical Care Among the Unemployed; Statement and Detailed Report Submitted to a Special Senate Committee To Investigate Unemployment and Relief, March 16, 1938.* *In Unemployment and Relief, Hearings . . . pursuant to S. Res. 36.* 75th Cong., 3d Sess. Vol. 2, February 28-April 8, 1938, pp. 1223-1236; 1480-1513. Washington, D. C., Government Printing Office, 1938.

Statement and report prepared in response to a request by a Senate Commit-

tee for information on the following points: the extent of illness among the unemployed population; the extent to which disease is a cause of unemployment; the extent to which unemployment tends to induce disease; the proportion of this disease which is preventable. Conclusion is that there is a direct relationship between sickness, unemployment, and relief. Appended report gives factual material from the National Health Survey and other surveys in support of this conclusion, classified under four main heads: extent of illness among the unemployed; illness and unemployability; medical care among the unemployed, including dental care; miscellaneous environmental conditions, including housing and nutrition.

## OCCUPATIONAL MORBIDITY AND MORTALITY STUDY

**Brinton, Hugh P. Disabling Morbidity, and Mortality Among White and Negro Male Employees in the Slaughter and Meat Packing Industry, 1930-34, Inclusive.** *Public Health Reports* 54: 1965-1977, November 3, 1939. Reprint No. 2111.

Chiefly concerned with comparison of the data on disability rates for white males and Negro males in the meat packing industry as obtained in the Occupational Morbidity and Mortality Study. Gives disability rates by age, by detailed diagnosis, and by occupational group. Mortality and fatality rates are given by diagnosis group with accompanying ratios of Negro to white employees.

**Brinton, Hugh P. Disabling Sickness and Nonindustrial Injuries Among Drivers and Other Employees of Certain Bus and Cab Companies, 1930-34, Inclusive.** *Public Health Reports* 54: 459-468, March 24, 1939. Reprint No. 2049.

Analyzes sickness records of 5,702 employees of 2 bus companies and 1 cab

company obtained from sick benefit organizations. Analysis is for white males only, as they comprised all but 3.7 percent of the total sickness cases reported. Employees are divided into 2 groups, drivers (73.3 percent) and others, and ratio between groups is given for all analyses by occupational groups. Tables also include analyses by age and diagnostic groups, and demonstrate that drivers were found to have a higher frequency of disabling sickness and a greater average number of days of disability per person than nondrivers.

**Brinton, Hugh P. Regional Variation in Disabling Sickness Among a Group of Negro Male Railroad Employees.** *Social Forces* 20: 264-270, December 1941.

Discusses data obtained from sick benefit organization records of 8,477 cases of disability of Negro male railroad workers in 58 cities during 1930-34. Morbidity rates are specific for age, sex, race, occupation, and economic status, and are compared by geographic region, 27 of the cities involved being located in the South and 31 in the North. Rates are compared with those for a group of white male railroad workers having comparable duties and geographic distribution, and deductions are drawn as to relation of racial differences in morbidity to regional differences of environment.

**Brinton, Hugh P., and Frasier, Elizabeth S. Disabling Morbidity Among Male and Female Employees in Mail Order Stores, 1930-34, Inclusive.** *Public Health Reports* 55: 1163-1178, June 28, 1940. Reprint No. 2174.

Using material drawn from the Occupational Morbidity and Mortality Study, presents data for 8,006 employees of all types in 4 mail order stores. Analysis is for white males and females only, and includes age distribution and frequency rates by occupational group, and frequency of disabilities by duration, by detailed diagnosis group, by marital status,

and among office workers as compared with all other workers.

**Brinton, Hugh P., and Seifert, Harry E.** *Disabling Morbidity Among Employees in the Soap Industry, 1930-34, Inclusive.* *Public Health Reports* 54: 1301-1316, July 21, 1939. Reprint No. 2093.

Deals with disability lasting 8 calendar days or more among 10,833 male and female employees in the soap industry as reported by sick benefit organizations in 36 establishments. Analysis of the data is made for white workers only, by age, sex, duration of disability, detailed diagnosis group, occupational group, and socioeconomic class.

**Brinton, Hugh P.; Seifert, Harry E.; and Frasier, Elizabeth S.** *Disabling Morbidity Among Employees in the Slaughter and Meat Packing Industry, 1930-34, Inclusive.* *Public Health Reports* 54: 2196-2219, December 15, 1939. Reprint No. 2119.

Analyzes the reports of sickness and nonindustrial injuries among 15,922 workers in the meat packing industry. Gives frequency rates for disability lasting 8 days or longer by age, sex, race, occupation, detailed diagnosis groups, environmental conditions, exposures to specific materials, and socioeconomic class.

**Gafafer, William M.** *Absenteeism. In Manual of Industrial Hygiene and Medical Service in War Industries.* William M. Gafafer, editor. Philadelphia, W. B. Saunders, 1943. Ch. 24, pp. 420-466.

Describes the practices of sick benefit organizations regarding membership requirements; notification, certification, and verification of disability; control of malingering; waiting periods; and maximum benefit periods as found in the Occupational Morbidity and Mortality Study. Uses data (including tables and graphs) from that study in the discus-

sion of average daily percentage of workers disabled, of time changes in quarterly frequencies, of comparisons of disabling sickness between Negro and white workers, and of frequency and duration of sickness.

**Gafafer, William M.** *Disabling Sickness Among Industrial Workers, With Particular Reference to Time Changes in Duration.* *American Journal of Public Health* 31: 443-451, May 1941.

Discusses the trend revealed by annual reports of the Department of Health for Scotland toward longer periods of disability from illness for insured males in Scotland, and the large amount of disability caused by chronic diseases among Scottish male wage earners. Presents comparable data drawn from medical records of the sick benefit organization of an American railroad for the years 1930-34. Shows that while the average frequency of disabling sicknesses lasting 8 days or longer had a downward trend during those years, the average duration of disabilities when they did occur showed an upward trend.

**Gafafer, William M.** *Disabling Sickness Among 2,000 White Male Glass Workers.* *Public Health Reports* 56: 1791-1799, September 5, 1941. Reprint No. 2312.

Reports on disability data obtained from sick benefit organizations concerning 2,169 white male glass workers. Occupations within the glass industry are grouped into 8 classifications, and analysis is presented by age composition and broad diagnosis groups for these occupational categories. Presents frequency, disability, and severity rates specific for age groups and broad diagnosis groups, showing that rheumatic diseases accounted for 15.5 percent of the total days of disability and 12.7 percent of the total number of cases experienced.

**Gafafer, William M.** *Frequency of Sickness and Nonindustrial Accidents Causing Disability Lasting Eight Calendar Days or Longer Among 60,000 White Male Railroad Employees, 1930-34, Inclusive.* *Public Health Reports* 53: 555-573, April 15, 1938. Reprint No. 1924.

A study of the frequency and duration of disabilities of 8 calendar days or longer experienced by approximately 60,000 white male railroad employees during 1930-34. Descriptive data regarding the 6 railroad sick benefit organizations which reported records are given in tabular form. Frequency tables giving a distribution of disabilities by age group and according to duration are presented in an appendix.

The material in this report is summarized in the *Monthly Labor Review* 48: 118-120, January 1939.

**Gafafer, William M.** *The Measurement of Sickness Among Industrial Workers.* *Medical Clinics of North America* 26: 1105-1120, July 1942.

In this discussion of the problems of absenteeism and the measurement of sickness among workers, the sections dealing with occupation and race as factors in disabling illness and the frequency and duration of that illness incorporate findings (including two graphs) of the Occupational Morbidity and Mortality Study.

Some of this material is also discussed by the author in *The Problem of Absenteeism Among Industrial Workers.* *Clinics* 2: 599-614, October 1943.

**Gafafer, W. M.** *Sickness Indemnification.* In *Sickness Indemnification, a Panel Discussion . . .* [Part II of Proceedings, Ninth Annual Meeting of Industrial Hygiene Foundation of America, Inc., November 15-16, 1944.] Transactions Series, Bulletin 1. Pittsburgh, Industrial Hygiene Foundation [1945]. pp. 18-50.

The section describing various factors affecting claim experiences (pp. 22-23) is based on the results of the study of sick benefit organizations made as part of the Occupational Morbidity and Mortality Study.

**Latimer, Murray W.** *Statement Submitted to the Committee on Interstate and Foreign Commerce, House of Representatives, January 31, 1945.* In *Railroad Retirement, Hearings . . . on H. R. 1362.* 79th Cong., 1st Sess. Part I, January 31, February 1, 2, 6, 7, 8, 9, 13, 14, 15, and 16, 1945, pp. 32-147. Washington, D. C., Government Printing Office, 1945.

The section of the statement dealing with sickness benefit costs, pp. 113-132, is based on and deals extensively with the data and conclusions presented in *Frequency of Sickness and Nonindustrial Accidents Causing Disability Lasting Eight Calendar Days or Longer Among 60,000 White Male Railroad Employees, 1930-34, Inclusive*, listed above.

**Sayers, R. R.; DallaValle, J. M.; and Bloomfield, S. G.** *Occupational and Environmental Analysis of the Cement, Clay, and Pottery Industries.* *Public Health Bulletin* 238. Washington, D. C., U. S. Treasury Dept., Public Health Service, National Institute of Health, 1937. 50 pp.

An analysis of occupational data relating to the clay, cement, and pottery industries which is planned to serve the further purpose of indicating methodology and practical objectives of industrial hygiene surveys. Gives detailed description of method used in the Occupational Morbidity and Mortality Study, including sample forms, and presents analyses of the industrial processes, the environmental factors, the health hazards, and the occupations involved in each industry described. Discusses the functions of industrial hygiene surveys, which are considered to be the collection and presentation of data on which occupational codes

may be built by State departments of industrial hygiene, the evaluation of potential health hazards, and the compilation of environmental and occupational information which can then be related to morbidity, mortality, and unemployment.

**Sayers, R. R.; Kroeger, Gertrud; and Gafafer, W. M. General Aspects and Functions of the Sick Benefit Organization.** *Public Health Reports* 52: 1563-1580, November 5, 1937. Reprint No. 1874.

Analyzes data from 381 sick benefit organizations covering 731 industrial plants which supplied sickness records of about 550,000 members covering the years 1930-34 for the Occupational Morbidity and Mortality Study. Describes historical development and geographical and industrial distribution of various types of sick benefit organizations, and discusses their membership and service requirements, dues, waiting periods, benefit periods, sick benefits, refusal of benefits, reporting of disabling illnesses, and supervision of disabled members.

**Seifert, Harry E. The Coding of Occupations for Machine Tabulating Purposes With Reference Principally to Studies on Occupational Morbidity.** *Journal of Industrial Hygiene and Toxicology* 21: 246-255, September 1939.

Describes the construction and use of the occupation code for illness data recorded on the punch cards in the Occupational Morbidity and Mortality Study. States essential features of a satisfactory occupation code, describes characteristics of occupation codes of the U. S. Census Bureau, the U. S. Works Progress Administration, and the Joint Committee on Mortality of the Association of Life Insurance Medical Directors and Actuarial Society of America, and shows how the Census Bureau code was modified to make the code used for the present study. Points out weaknesses of the code and makes suggestions for improvement.

## ILLNESS AND MEDICAL CARE IN CHILDHOOD

**Holland, Dorothy F. The Disabling Diseases of Childhood, Their Characteristics and Medical Care as Observed in 500,000 Children in 83 Cities Canvassed in the National Health Survey, 1935-1936. I. Characteristics and Leading Causes.** *Public Health Reports* 55: 135-156, January 26, 1940. Reprint No. 2134.

Classifies the disabling diseases of children into the broad major groups: communicable diseases, diseases of the respiratory system, diseases of the digestive system, chronic diseases and orthopedic impairments, all other diseases, and accidents, and declares on the basis of data obtained concerning 518,767 white children under age 15 that 8 out of 10 disabling illnesses were in the first 2 groups, 5 being acute communicable diseases and 3 acute respiratory diseases. Tables show frequency, severity, and disability rates by age and cause. Frequency and incidence rates are also shown for certain specific diseases, and the relation of frequency rates by cause to income status of family is discussed. Prevalence rates of orthopedic impairments classified by part affected and by cause are presented for 602,814 white and Negro children.

**Holland, Dorothy F. The Disabling Diseases of Childhood, Their Characteristics and Medical Care as Observed in 500,000 Children in 83 Cities Canvassed in the National Health Survey, 1935-1936. II. Medical and Nursing Care.** *Public Health Reports* 55: 227-244. Reprint No. 2137.

Presents data on medical and nursing care of disabling children's diseases as reported in the National Health Survey. Discusses receipt of physicians' services, bedside nursing care, and hospital care in relation to age of child, kind of disease, and size of city, and shows the relation between size of family income and the receipt of such care.

**Holland, Dorothy F.** *The Disabling Diseases of Childhood, Their Characteristics and Medical Care as Observed in 500,000 Children in Eighty-three Cities Canvassed in the National Health Survey of 1935-1936.* *American Journal of Diseases of Children* 58: 1157-1185, December 1939.

Contains in slightly abridged form the material in the author's two reports listed above.

**Parran, Thomas.** *The Relationship of Maternal and Child Health to the General Health Program.* *American Journal of Public Health* 28: 256-262, March 1938.

Discusses the interrelationships of maternal health, child health, and the health of the Nation, and outlines a general health program which will improve all three. Cites the close relationship between poverty and disease disclosed by the National Health Survey as evidence of special need for more adequate health measures and medical care for the underprivileged and marginal economic groups in the country. Describes the public health problems in prenatal and infant care, tuberculosis, syphilis, pneumonia, and cancer as of especial importance.

Also published under title *Maternal and Child Health in Relation to the Health of All the People*, in *Proceedings of the Conference on Better Care for Mothers and Babies . . . 1938.* U. S. Children's Bureau Publication No. 246, pp. 12-19.

## COMMUNICABLE DISEASE STUDY

**Collins, Selwyn D.** *Diphtheria Incidence and Trends in Relation to Artificial Immunization, With Some Comparative Data for Scarlet Fever.* *Public Health Reports* 61: 203-240, February 15, 1946. Reprint No. 2693.

A report on the declining trend of diphtheria and scarlet fever incidence, mortality, and case fatality in Massa-

chusetts, Michigan, and New York State, and of diphtheria incidence and mortality in different geographic sections. Correlates the age-adjusted annual case rates of diphtheria with percentages of children immunized, as revealed by the Communicable Disease Study, and discusses variations in incidence and mortality with age, sex, race, urbanization, and family income. The discussion of data on immunization includes report on percent of current immunizations done in public clinics. Includes 26 tables and figures and a list of 35 references.

**Collins, Selwyn D.** *Illness Among Infants, With Comparative Mortality Data.* *Public Health Reports* 63: 637-662, May 14, 1948. Reprint No. 2859.

Although most of the data discussed in this report are drawn from five other studies, those dealing with communicable disease are taken from the Communicable Disease Study of the National Health Survey. Presents tables showing incidence and secondary attack rate for the common communicable diseases, and includes an explanation of corrections for bias in the Communicable Disease Study data.

**Collins, Selwyn D.** *The Incidence of Poliomyelitis and Its Crippling Effects, as Recorded in Family Surveys.* *Public Health Reports* 61: 327-355, March 8, 1946. Reprint No. 2696.

Describes the geographic distribution of poliomyelitis epidemics, 1930-45, and charts the monthly incidence (on an annual basis) of reported cases per 100,000 population in each geographic region of the United States for those years. Presents data from the Communicable Disease Study on history of poliomyelitis attacks by age and sex for different geographic areas. Draws on National Health Survey findings for additional data on prevalence of crippling effects of poliomyelitis, and combines data from both surveys to produce age-sex specific



incidence and mortality rates for different geographic areas, with special consideration of variation by color and size of city. Also discusses the completeness of reporting of cases to the health authorities, particularly as reflected in abnormally high case fatality rates. Tabular material is presented in 19 figures and tables.

**Collins, Selwyn D. The Incidence of Rheumatic Fever as Recorded in General Morbidity Surveys of Families.** Public Health Reports Supplement 198. Washington, D. C., Federal Security Agency, U. S. Public Health Service [1947]. 59 pp.

Reports on the findings of the National Health Survey and its supplementary Communicable Disease Study as to rheumatic fever, chorea, and heart disease occurring in ages 3-24 and presumed to be largely rheumatic in origin. Data on incidence of rheumatic fever under age 25 are from both surveys combined, those for chorea and heart disease are from the National Health Survey only. Incidence rates are compared with those for the Armed Forces. Extensive tabular material supports the discussion of age incidence among persons of each sex; of age curves of incidence and mortality; of variation in incidence by size of city, geographic section, and color; of seasonal variation; of relation of rheumatic fever to family income and household crowding; and of severity of cases. Includes a list of 34 references.

**Collins, Selwyn D., and Councell, Clara. Extent of Immunization and Case Histories for Diphtheria, Smallpox, Scarlet Fever, and Typhoid Fever in 200,000 Surveyed Families in 28 Large Cities.** *Public Health Reports* 58: 1121-1151, July 23, 1943. Reprint No. 2495.

Reports on the extent of immunization for diphtheria, smallpox, scarlet fever, and typhoid fever in 28 large cities in 19 States as revealed by the Communica-

ble Disease Study made in conjunction with the National Health Survey. Reviews the need for and history of immunization in the treatment of various diseases in this country and abroad. Gives data for 182,640 children under 15 years of age, analyzes the data by specific disease, by geographic area, by age of child, by race, and by family income, and compares the data with those from other surveys and reports. A few data are shown for children up to 20 years. Includes tables, figures, and bibliography.

**Collins, Selwyn D.; Wheeler, Ralph E.; and Shannon, Robert D. The Occurrence of Whooping Cough, Chickenpox, Mumps, Measles, and German Measles in 200,000 Surveyed Families in 28 Large Cities.** Special Study Series 1. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1942. 40 pp. Processed.

Reports on scope, methods, and results of a survey of communicable diseases in children in 213,931 households in 28 large cities made in 1936 subsequent to the National Health Survey. The diseases included were whooping cough, mumps, chickenpox, measles, and German measles, and data are presented as to their comparative incidence and annual rate of incidence as well as their incidence by age and the percentage distribution of children of specific ages with history of prior attack.

## CHRONIC DISEASE

**Boas, Ernst P., M.D. The Unseen Plague, Chronic Disease.** New York, Augustin, 1940. 121 pp.

Chapter 1 of this presentation of the general problem of chronic disease is primarily concerned with its significance as the cause of disability and ensuing social and economic burdens. Data from the National Health Survey are presented on the prevalence of chronic dis-

ease by age, and on the rank of specified chronic diseases as cause of number of days lost, number of invalids, and number of cases. Estimates of national totals for cases and for number of invalids caused by specified diseases have also been constructed from Survey data, which are used as the source of 5 of the book's 7 tables.

**Lawrence, P. S.** *An Estimate of the Incidence of Chronic Disease. Public Health Reports* 63: 69-82, January 16, 1948.

Contains a section comparing the prevalence rates for chronic disease and major impairments from the National Health Survey with those from the Hagerstown Survey of 1943.

**McNickle, R. K.** *Chronic Disease. Editorial Research Reports* 1: 369-385, May 25, 1949.

A report on chronic disease which pictures the menace to the Nation's welfare and the problems of prevention, control, and rehabilitation it presents. The discussion of the prevalence of chronic disease and disability (pp. 372-374) summarizes and discusses National Health Survey findings.

**National Health Survey, 1935-1936. The Magnitude of the Chronic Disease Problem in the United States.** Preliminary Reports, Sickness and Medical Care Series, Bulletin 6. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938 (Revised 1939). 19 pp. Processed.

Shows extent and nature of chronic disease problem by citing figures for prevalence, disability (days lost from work), and mortality. Ranks the different chronic diseases according to their result in estimated number of days lost, estimated number of invalids, estimated number of cases, and estimated number of deaths. Also discusses relation of chronic disease to age and income.

**Perrott, George St.J.** *The Problem of Chronic Disease. Psychosomatic Medicine* 7: 21-27, January 1945.

Describes the magnitude of the problem of chronic disease in the United States in terms of population estimates for various diseases by age and sex and of the amount of medical care received for chronic diseases. Bases discussion on the findings of the National Health Survey. Estimates future prevalence of chronic diseases and resulting needs for medical services, and discusses the role of psychiatry in future health programs designed to meet the problem. Has 9 tables.

**Perrott, George St.J., and Holland, Dorothy F.** *Chronic Disease and Gross Impairments in a Northern Industrial Community. Journal of American Medical Association* 108: 1876-1886, May 29, 1937.

Presents preliminary results of the National Health Survey in a northern industrial city of approximately 150,000 population, with one-ninth of the population (18,000 persons in 5,118 families) reached in a house-to-house canvass. Gives data on frequency, severity, and type of chronic disease and/or gross physical impairment resulting from disease, injury, or other cause and relates these findings to age, sex, economic status, employment status, and amount and nature of medical care received by the ill or handicapped person. Points out lack of and need for a coordinated community effort to meet problem of chronic illness revealed by the data.

**Ross, Mary.** *How Healthy Are We? Survey Graphic* 26: 371-374, July 1937.

Describes the National Health Survey and summarizes some of the preliminary findings, especially those pertaining to chronic disease.

## IMPAIRED HEARING STUDY

**Beasley, Willis C. Characteristics and Distribution of Impaired Hearing in the Population of the United States.** *Journal of Acoustical Society of America* 12: 114-121, July 1940.

A description of the method, scope, and results of the special survey of hearing impairment which was made in conjunction with the National Health Survey. Includes detailed explanation of the survey hearing schedule used by enumerators and the clinical investigation which followed. Survey results are shown in tables giving prevalence and incidence rates for deafness by age, sex, and family income.

**Beasley, Willis C. Correlation Between Hearing Loss Measurements by Air Conduction on Eight Tones.** *Journal of Acoustical Society of America* 12: 104-113, July 1940.

A report on the nature of correlation between hearing loss measurements, based upon an analysis of 56 correlation tables derived from measurements of auditory acuity by air conduction on 16,620 ears. The data are considered to be useful for audiometer design and also for analysis of fundamental problems of auditory function.

**Beasley, Willis C. The General Problem of Deafness in the Population.** *Laryngoscope* 50: 856-905, September 1940.

Discusses some of the epidemiological aspects of deafness in the population of the United States on the basis of data gathered in the National Health Survey and the subsequent special clinical investigation of impaired hearing. Chiefly considers the prevalence and annual incidence of severely impaired hearing in relation to age, sex, family income, employment status, and occupational classes, and the prevalence and annual

incidence of progressive high-tone deafness involving moderate impairment for perception of conversational speech in relation to age and sex. Also considers the problem of symptomatic loss of hearing for high tones in childhood, and the predominating trend of chronic progressive nerve deafness in adult years. Includes numerous figures and tables and a bibliography of 85 items.

**Beasley, Willis C. Partial Deafness and Hearing-Aid Design. I. Characteristics of Hearing Loss in Various Types of Deafness.** *Journal of Society of Motion Picture Engineers* 35: 59-85, July 1940.

Describes patterns of hearing loss, as revealed by the clinical study of impaired hearing made in conjunction with the National Health Survey, in relation to degree of handicap for hearing speech. Four groups of hearing losses are considered, classified according to the degree of impairment: (1) impairment for hearing at church, in the theater, and in group conversation; (2) impairment for hearing conversation at close range; (3) impairment for hearing over the telephone; and (4) inability to hear speech under any conditions. Discusses the relation of the various degrees of impairment to the problem of hearing-aid design.

**Beranek, Leo L. Acoustic Measurements.** New York, John Wiley & Sons, 1949. 914 pp.

Describes way in which U. S. Bureau of Standards used hearing study data on normal hearing in the population to set up electro-acoustic physical standards for calibrating audiometers in accordance with the regulations established jointly by the American Standards Association and the American Medical Association.

**Corliss, E. L. R., and Snyder, W. F. Calibration of Audiometers.** *Journal of Acoustical Society of America* 22: 837-842, November 1950.

Describes precisely for technical purposes how the National Health Survey hearing study data were used in setting up national standards for calibrating audiometers.

**[Great Britain] Medical Research Council, Committee on Electro-Acoustics. Hearing Aids and Audiometers; Report of the Committee . . .** Medical Research Council Special Report Series No. 261. London, His Majesty's Stationery Office, 1947. 71 pp.

Draws extensively on National Health Survey hearing study data in making practical estimates of hearing deficiency for purposes of fitting hearing aids. Relationships found by the hearing study between audiometric hearing loss and impairment for hearing speech are confirmed by direct tests with speech audiometers.

**National Health Survey, 1935-36. Generalized Age and Sex Trends in Hearing Loss.** Preliminary Reports, Hearing Study Series, Bulletin 7. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. [43] pp. Processed.

Deals with generalized trends shown by the relationships between age, sex, types of defective hearing, and quantitative determinations of auditory acuity. Declares that the prevalence of impaired hearing for direct speech increases at a constant percentage rate with advancing age among both males and females; that there is a higher degree of correlation between age and hearing loss for tones above than for those below 1024 cycles; that there is a factor of constant difference between hearing loss levels shown in audiometric data for males and females, females being more deficient than males for middle and low tones, and males more deficient than females for high tones. Includes the tables of age and sex distributions of acuity measurements on which conclusions are based.

**National Health Survey, 1935-1936. Normal Hearing by Air and Bone Conduction.** Preliminary Reports, Hearing Study Series, Bulletin 4. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. [23] pp. Processed.

Presents a selected set of measurements of auditory acuity, for both bone and air conduction, of 1,242 persons examined during the clinical hearing study carried on as part of the National Health Survey. The set of measurements is considered to represent normal hearing in the population. Auditory acuity was measured on 8 tones by air conduction and 6 tones by bone conduction, and correlation tables and coefficients are given for each pair of tones for measurements by air conduction, each pair of tones for measurements by bone conduction, right and left ears for measurements on each tone by air conduction, and better-ear value by air conduction in relation to bone conduction on each tone.

**National Health Survey, 1935-1936. Normal Hearing for Speech at Each Decade of Life.** Preliminary Reports, Hearing Study Series, Bulletin 5. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. [25] pp. Processed.

Presents an analysis of auditory acuity measurements made on 2,002 males and 2,660 females representing each decade of life from under 10 years to 60 years and over and having a clinical history of normal hearing for speech in both ears. Analyzes the relationship between variations in the distributions of measurements and age and sex, and evaluates these variations in terms of probable impairments of hearing for speech.

**National Health Survey, 1935-1936. Preliminary Analysis of Audiometric Data in Relation to Clinical History of Impaired Hearing.** Preliminary Reports,

Hearing Study Series, Bulletin 2. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. [31] pp. Processed.

A critical examination of the measurements of auditory acuity classified according to the clinical histories of hearing impairments obtained from 8,310 persons who had been enumerated during the National Health Survey. Shows that the classifications of degree of hearing impairment used in making the clinical history are supported by the distribution of threshold acuity measurements on the audiometer and may be regarded as legitimately representing stages of hearing loss graduated successively in 20 decibel steps for audio frequencies in the speech range. Concludes that the history designations may therefore be used as a basis for studying trends of hearing impairment in relation to other variables.

**National Health Survey, 1935-1936. Prevalence of Aural Pathology and Clinical History of Impaired Hearing Among Males and Females of Various Ages.** Preliminary Reports, Hearing Study Series, Bulletin 3. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. 6 pp. Processed.

Investigates the relationship between types of hearing loss as revealed in the clinical history of hearing impairments, and aural pathology as revealed by otoscopic examination. Reveals a direct correlation between severely impaired hearing and observable aural pathology. Includes tables.

**National Health Survey, 1935-1936. Sex Differences and Age Variations in Hearing Loss in Relation to Stage of Deafness.** Preliminary Reports, Hearing Study Series, Bulletin 6. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. [41] pp. Processed.

Analyzes measurements of auditory acuity obtained in the clinical hearing

study in order to determine the degree of relationship between variations associated with age and sex and 4 stages of impaired hearing. Concludes that in the audiograms certain sex differences are manifested throughout all age levels for any type of clinical history ranging from normal hearing to total deafness for speech, males always showing more hearing loss than females of the same age range on tones above 1,500 cycles, and females always showing more hearing loss than males of the same age range for tones below 1,500 cycles. Suggests that therefore hearing aids require distinctly different provisions for males and for females. Includes a bibliography of 79 items and numerous figures and tables.

**National Health Survey, 1935-1936. Significance, Scope and Method of a Clinical Investigation of Hearing in the General Population.** Preliminary Reports, Hearing Study Series, Bulletin 1. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. 30 pp. Processed.

Discusses the significance and scope of the clinical hearing study which supplemented the information obtained on chronic hearing impairments in the National Health Survey, and the relationship of the clinical study to the Survey. Describes the procedures for enumerating impairments used in the Survey, the technical procedures used in the clinics which made the study, and the nature of the information obtained. Includes a list of 47 references.

**Steinberg, John C., and Gardner, Mark B. On the Auditory Significance of the Term Hearing Loss.** *Journal of Acoustical Society of America* 11: 270-277, January 1940.

Compares standards of normal hearing in the population as obtained by the hearing study of the National Health Survey with precision tests on a group of trained laboratory observers. Differences are

considered significant for some frequencies but not for others. Demonstrates that audiometers should be standardized on the basis of norms derived from the general population rather than from a selected group of technicians. Includes numerous graphs, one of which is reproduced from a Survey publication.

**Strommen, Einar. Statistical Trends Among Hearing Aid Users, a Study of 10,000 Case Records.** *Journal of Acoustical Society of America* 15: 211-222, April 1944.

Describes the types of hearing aids purchased over a 2-year period by hard-of-hearing persons. Shows relationships among stages of deafness, age and sex of the persons, and the response-frequency pattern of the hearing aids. Demonstrates that the data showing these relationships correspond with requirements of the hard-of-hearing as predicted in the National Health Survey hearing study analysis.

**Watson, Leland A., and Tolan, Thomas, M. D. Hearing Tests and Hearing Instruments.** Baltimore, Williams & Wilkins, 1949. 597 pp.

Appraises hearing study data in relation to audiometer technique, classification of hearing handicaps, and estimates of prevalence of hearing handicaps in the population. Quotes extensively from hearing study publications and reproduces numerous hearing study graphs. Contains 23 tables and more than 200 illustrations.

## **SPECIFIC DIAGNOSES**

### **ACCIDENTS**

**Britten, Rollo H.; Klebba, Joan; and Hailman, David E. Accidents in the Urban Home as Recorded in the National Health Survey.** *Public Health Reports* 55: 2061-2086, November 8, 1940. Reprint No. 2207.

Discloses that nearly 2 percent of all deaths in the United States and 23 percent of all accidental deaths in the United States are the result of accidents in the home. Presents figures on frequency of home accidents resulting in disability of 1 week or more by age, sex, economic status, employment status, and means of injury; days of disability per case and annual days of disability per person observed, by age; and prevalence of impairments caused by home accidents by means of injury and by age.

**Klebba, Joan. Industrial Injuries Among the Urban Population as Recorded in the National Health Survey.** *Public Health Reports* 56: 2375-2392, December 12, 1941. Reprint No. 2339.

Summarizes findings on nonfatal industrial injuries of white and Negro workers aged 16 and over, presenting analytical tables for frequency by age, sex, and economic status; days of disability per case and annual days of disability per person observed, by age; and prevalence of orthopedic impairments due to industrial injuries, by age. Demonstrates that frequency rates and duration of disability resulting from industrial accidents rise with age, that frequency rates are 5 times as high for male as for female workers, and that the frequency of industrial injuries bears an inverse relationship to annual family income.

**Klebba, Joan, and Britten, Rollo H. Public Accidents Among the Urban Population as Recorded in the National Health Survey.** *Public Health Reports* 56: 1419-1439, July 11, 1941. Reprint No. 2294.

Defines public accidents as those occurring on a public highway or in another public place and resulting in disability lasting 1 week or more or in hospitalization or death. Gives figures for frequency and amount of disability from such accidents for the urban population by sex, age, means of injury, and economic status,

showing that 4 percent of all deaths and 50 percent of all accidental deaths in the United States are caused by public accidents.

**National Health Survey, 1935-1936. Accidents as a Cause of Disability.** Preliminary Reports, Sickness and Medical Care Series, Bulletin 3. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938 (Revised 1939). 13 pp. Processed.

Discusses accidents as a cause of temporary disability and permanent impairment. Gives figures for frequency by age and sex, for percentage distribution by place of occurrence and specified means of injury, and for prevalence and percentage distribution of permanent impairments due to accidents by nature of impairment and place of occurrence of accident. Includes separate tables for home accidents, showing frequency by age and sex and by age and family income.

#### BLINDNESS

**Britten, Rollo H. Blindness, as Recorded in the National Health Survey—Amount, Causes and Relation to Certain Social Factors.** *Public Health Reports* 56: 2191-2215, November 14, 1941. Reprint No. 2332.

An analysis of the National Health Survey data on the prevalence of blindness in the United States. Numerous figures and tables show prevalence by sex, age, and race, by geographic area and size of city, by economic status, and by employment status. Causes of blindness are discussed and relation of causes to sex and age is shown. Data are included for blindness in one eye only, in addition to the data for blindness in both eyes.

A preliminary report on these findings was issued as Bulletin 10 of the Sickness and Medical Care Series, entitled **Blindness—Amount, Causes and Relation to Certain Social Factors**, and listed below.

**National Health Survey, 1935-1936. Blindness—Amount, Causes and Relation to Certain Social Factors.** Preliminary Reports, Sickness and Medical Care Series, Bulletin 10. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. 8 pp. Processed.

Estimates the total number of persons in the United States blind in both eyes, or in one eye, for the white and the Negro population, and discusses causes of blindness, relation of age and sex to blindness, employment status, and income of blind persons. Tables show frequency rate and percentage distribution of blindness according to cause, age, sex, race, and annual family income.

**Sanders, Barkev S. The Blind—Their Number and Characteristics.** *Social Security Bulletin* 6: 17-26, October 1943.

Analyzes the National Health Survey data to show rates of blindness by age, sex, income status, and employment status, and compares the Survey data with those from the United States census and from States reporting on applicants for assistance to the blind. Points out the limitations of the Survey data because of the virtual restriction of the sample to urban areas, the exclusion of the institutional population, and the exclusion of cases of partial blindness from the enumeration. Exclusion of rural areas is considered an important factor in underreporting, not only because other sources indicate a higher frequency of blindness in rural than in urban districts, but also because the Negro population is concentrated in rural districts, and census data indicate that the rate of blindness for Negroes is at least twice that for the white population. Other nonwhite groups also are underrepresented and also have a higher blindness rate than white groups. When corrections for all these factors are made, estimates of blindness are considerably higher than the National Health Survey would indicate.

## DIABETES

Spiegelman, Mortimer, and Marks, Herbert H. Age and Sex Variations in the Prevalence and Onset of Diabetes Mellitus. *American Journal of Public Health* 36: 26-33, January 1946.

Uses unpublished data from the National Health Survey findings as to diabetes prevalence and compares the data with those obtained by the Massachusetts survey of chronic diseases made in 1929-31 and those reported by the George F. Baker Clinic on diabetic mortality among patients 1926-29 to present a picture of present and probable future amount of diabetes in the United States. Gives estimates of the sex and age distribution of the existing diabetic population, of the annual number of new diabetics (by age and sex), and of the number of persons (by age and sex) who may be expected eventually to become diabetics. Outlines procedures and gives mathematical formulas used in obtaining the diabetes onset rates.

## HEART DISEASE

Collins, Selwyn D. Statistical Studies of Heart Disease. V. Illness From Heart and Other Cardiovascular-Renal Diseases Recorded in General Morbidity Surveys of Families. *Public Health Reports* 64: 1439-1492, November 18, 1949. Reprint No. 2978.

A discussion of the general illness picture presented by cardiovascular-renal diseases, including heart disease, hypertension (intracranial lesions, arteriosclerosis, high blood pressure) and nephritis, based on analysis of the morbidity and mortality data obtained by the National Health Survey. Considers the relative importance, both in number of cases and fatalities, of each of the 3 diagnoses in the total cardiovascular-renal group; the age-incidence and prevalence of each disease by onset and disability; the distribution of cases of each disease according to onset and disability; sex differences

in illness and mortality rates at specific ages; case fatality, duration of cases, calls by physicians, seasonal variability, and relation of economic status to disability, for each diagnosis group. An appendix describes the check on the completeness and correctness of Survey reporting on cardiovascular-renal diseases which was made by comparing the detailed tabulation of the diagnoses reported in the Survey data from 10 cities with those supplied on special questionnaires sent the attending doctor, clinic, or hospital. Compares corrected rates with those reported in several physical examination studies. Extensively documented with tables and figures.

Woolsey, Theodore D. Statistical Studies of Heart Disease. VI. Age at Onset of Heart and Other Cardiovascular-Renal Diseases. *Public Health Reports* 65: 555-571, April 28, 1950. Reprint No. 3017.

Using the data obtained from the National Health Survey on prevalence of heart disease and other cardiovascular-renal diseases, estimates the age of onset of these diseases. Also estimates the number at any given age who have one of these diseases by multiplying the age-prevalence rates by the number of persons surviving to each age. Shows how these results combined with estimates of deaths at each age may be used to predict the proportion of persons alive at any given birthday who will acquire hypertension, nephritis, or heart disease by the next birthday. An appendix gives detailed explanation of the statistical method used in the construction of the tables, together with the adjustments made to correct for underreporting and inaccuracy of information reported.

## PHYSICAL IMPAIRMENTS

Britten, Rollo H. Physical Impairments and Socio-Environmental Factors. *Milbank Memorial Fund Quarterly* 26: 386-397, October 1948.



Describes and compares certain aspects of the National Health Survey and the study made for the Milbank Memorial Fund of physical impairments in adult life from health examination records of the Life Extension Institute. Uses data from both to show that a positive relationship exists between disabling physical impairments, specifically blindness, deafness, and orthopedic impairments, and low employment and economic status, and points out that the low economic status in its turn results in less medical care and more impairment.

**Karpinos, Bernard D.** *The Physically Handicapped.* *Public Health Reports* 58: 1573-1592, October 22, 1943. Reprint No. 2521.

Concerned primarily with orthopedic handicaps as reported by the surveyed population of 83 cities in 1935-36, and with estimates for the total population based on the Survey findings. Gives age-specific prevalence and incidence rates by sex with corresponding estimates as of 1940, and discusses employment status of the handicapped, causes and types of impairments, racial and economic factors. Final section gives combined estimates for prevalence rates of orthopedic impairments, blindness, and deafness, divided into 2 groups, major impairments and minor impairments. Includes 17 figures and tables and a list of 34 references.

**National Health Survey, 1935-1936. The Prevalence and Causes of Orthopedic Impairments.** Preliminary Reports, Sickness and Medical Care Series, Bulletin 4. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938 (Revised 1939). 20 pp. Processed.

Reports on the prevalence of orthopedic impairments and the occurrence of incapacity associated with these impairments in eight large cities and discusses the relation of such impairments to age, sex, cause, and family income. Impair-

ments and resulting incapacity are found much more frequently among relief recipients and low-income groups than among high-income groups. Six tables in text and five in appendixes, plus seven figures, present statistical data.

## PNEUMONIA

**Britten, Rollo H.** *The Incidence of Pneumonia as Recorded in the National Health Survey.* *Public Health Reports* 57: 1479-1494, October 2, 1942. Reprint No. 2406.

Presents findings of the National Health Survey on incidence, severity, and medical care of pneumonia, and the relation of incidence to such factors as age, sex, geographic region and size of community, housing, and economic status. Includes 7 figures and 12 tables. Considers Survey findings on medical care of pneumonia limited in applicability to present conditions because of rapidly changing character of pneumonia treatment.

A preliminary report on these data was issued under the title **Pneumonia in Urban United States: Frequency, Severity, and Medical Care**, and is listed below.

**National Health Survey, 1935-1936. Pneumonia in Urban United States: Frequency, Severity, and Medical Care.** Preliminary Reports, Sickness and Medical Care Series, Bulletin 11. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. 14 pp. Processed.

Gives data for the urban white population of the United States relating to frequency, severity, and medical care of pneumonia, and relation of these three aspects of pneumonia to age, sex, and economic status. Concludes that in general the frequency rate varied inversely with economic status and markedly with age, being highest among young children and aged persons and lowest among youths, and that the amount of medical care,

including number of home calls by a physician and amount of nursing care, bore a direct relation to family income. Numerical data are presented in 30 accompanying figures and tables.

## MEDICAL CARE

**Britten, Rollo H.** *The National Health Survey; Receipt of Medical Services in Different Urban Population Groups.* *Public Health Reports* 55: 2199-2224, November 29, 1940. Reprint No. 2213.

A summary of the data reported in the National Health Survey regarding the receipt of medical care. Factors included in the discussion as having an important relation to the receipt of medical services are size of city, economic status, age, diagnosis, and race. Concludes that highest illness rates and least amount of medical care were found in groups having lowest economic status. Extensive statistical data include more than 20 figures and tables.

**Britten, Rollo H.** *A Study of Dental Care in Detroit, Mich.* *Public Health Reports* 53: 446-459, March 25, 1938. Reprint No. 1919.

Reports on the extent and nature of dental care received during a year's time by the general population of a large city (Detroit) on the basis of data obtained through a special supplementary schedule filled out in a house-to-house canvass of 19,000 families conducted by the National Health Survey. Discusses the findings in relation to age, race, and economic status of the individual receiving treatment. Includes an appendix of 7 tables in addition to 5 tables and 3 figures in the text.

**Campbell, Alexander M., M. D.** *Maternal Care in Michigan, a Progress Note.* *Journal of the Michigan State Medical Society* 37: 17-21, January 1938.

A preliminary report on results of the Michigan Maternal Care Study. Describes the purpose and method of the study, the size of the sample obtained, and the reasons for concluding that the sample was truly representative of the State. Discusses the findings on presence and kind of training of birth attendant, nature and extent of prenatal care, and influence of income and relief status, of urban and rural residence, and of primiparity and multiparity on receipt of prenatal care.

**Goddard, Jennie C.** *Medical and Nursing Services for the Maternal Cases of the National Health Survey.* *Public Health Bulletin* 264. Washington, D. C., Federal Security Agency, U. S. Public Health Service, National Institute of Health, 1941. 63 pp.

Summarizes the findings of the National Health Survey as to medical and nursing care received by white and Negro, native and foreign-born women in urban and rural areas in four major geographic sections of the United States during pregnancy, childbirth, and the postnatal period. Discusses nursing services under the heads hospital, private duty, and visiting nursing service. Specially considers prenatal and operative services, prenatal supervision being discussed in relation to economic status, place of residence, parity, and educational attainment of the mother, and operative techniques in relation to hospitalization or lack of it. Shows relation of all aspects of maternal care to the economic status of the mother. An appendix of 10 tables supplements the 27 illustrative figures in the text.

**Goddard, Jennie C., and Palmer, Carroll E.** *Maternal Services in Michigan With Special Reference to Economic Status.* *Public Health Reports* 54: 825-840, May 19, 1939. Reprint No. 2070.

Discusses inequality of maternal care in Michigan, particularly in relation to

economic status, residence in rural or in urban areas, and first or subsequent pregnancy. Shows that in general the least maternal care was received by women on relief or with incomes under \$1,000, the inequality existing for prenatal, natal, and postnatal care, for attendance by an obstetrician, for operative services, and for hospitalization. Women in rural areas in general received less care than did women in urban areas, and women experiencing their first pregnancy received more care than did those in a second or subsequent pregnancy.

**Mountin, Joseph W., M. D.** *The Appraisal of Programs for Medical and Hospital Care in Small Towns and Rural Areas.* In *National Conference of Catholic Charities, Proceedings of the Twenty-Sixth Meeting . . .* Chicago, Illinois, November 17 to 20, 1940. Washington, D. C., The Conference, 1941. pp. 140-152.

Discusses the problem of providing adequate medical and hospital care for residents of rural areas, particularly for those who have very small incomes. Uses data from the National Health Survey to show rural medical needs and the difference between rural and urban areas in amount of physicians' services, hospital care, and nursing care received by sick persons.

**Mountin, Joseph W., and O'Hara, Hazel.** *Differences in Opportunities for Health.* *Public Health Reports* 53: 485-496, April 1, 1938. Reprint No. 1920.

Shows that good health as reflected in illness and disability rates bears a definite relation to economic status. Cites figures to show that amount of medical care, including physicians' attendance and hospitalization, amount of surgery, of dental care, immunizations, and physical examinations all vary directly with family income, the least care in each instance being received by families on relief or with annual incomes of less than

\$1,200. Cites the unequal distribution of health facilities as giving people of the more populous counties of the North and East in general an advantage over residents of rural areas, particularly in the South and West, in securing institutional care, though mental and tuberculosis hospitals are seen as an exception to the general concentration of hospitalization among those who can pay for it.

**National Health Survey, 1935-1936.** *Maternal Care in Michigan, a Study of Obstetric Practices.* Preliminary Reports, Sickness and Medical Care Series, Bulletin 8. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. 44 pp. Processed.

Reports on a study of quality and distribution of maternal health services during pregnancy and childbirth in Michigan, carried out by the Committee on Maternal Health of the Michigan State Medical Society, in conjunction with the National Health Survey. Approximately 21,000 birth certificates and 10,000 detailed obstetric histories furnished by the attendants during childbirth constitute the material on which statistics and conclusions are based. Discusses amount and type of prenatal, natal, and postnatal care, including use of surgical and antiseptic procedures during delivery and of practices considered potentially dangerous, place of delivery (whether hospital or home), and medical training of attendant at delivery. Classifies all mothers by place of residence (rural or size of urban center) and by amount of family income, and relates the medical findings to these two factors. Concludes that, in general, women who are poor or on relief, who live in rural communities, who are delivered at home, and who are multiparous receive the least adequate prenatal, natal, and postnatal care.

Also issued as the Report of the Committee on Maternal Health of the Michigan State Medical Society.

**Perrott, George St. John.** *Medical Needs Revealed by the National Health Survey.*

*In National Conference of Social Work Proceedings, 1938. Chicago, University of Chicago Press, 1939. pp. 636-645.*

Discusses the results of the Survey in terms of areas of greatest medical need as revealed by incidence, prevalence, and disability rates for various diseases. Points out the relation found to exist between medical need, medical care, and low family income, and describes the wide variations in ability of surveyed communities to supply adequate medical facilities and personnel, the greatest contrasts existing between rural areas of Southern States and large cities of 100,000 population and over.

**Perrott, George St.J., and Holland, Dorothy F.** *Health as an Element in Social Security. Annals of American Academy of Political and Social Science* 202: 116-136, March 1939.

Gives a general picture of the health of the country as shown by the National Health Survey and suggests a program for meeting the needs revealed in the areas of disease prevention and treatment, doctors' and nurses' services, hospitals and other medical facilities. Points out the economic cost to the Nation of illness and disability and the consequent interest of Government in preventive services aimed at reducing this cost. Discusses the relation of medical care to economic status and describes programs and proposals of Government to help meet medical needs of the low-income groups in the population.

**Roche, Josephine.** *Medical Care as a Public Health Function. American Journal of Public Health* 27: 1221-1226, December 1937.

Uses the figures compiled by the National Health Survey showing the concentration of sickness and disability in the low-income groups in the population to prove the inadequacy and unequal distribution of medical services. Advo-

cates leadership by public health forces in formulating a program which will provide better medical care for those who are financially unable to purchase it.

## MEDICAL FACILITIES STUDY

### HOSPITALS

**Hospital Facilities in the United States. Part I. Selected Characteristics of Hospital Facilities in 1936.** Mountin, Joseph W.; Pennell, Elliott H.; and Flook, Evelyn. **Part II. Trends in Hospital Development, 1928-1936.** Mountin, Joseph W.; Pennell, Elliott H.; and Pearson, Kay. *Public Health Bulletin* 243. Washington, D. C., U. S. Treasury Dept., Public Health Service, National Institute of Health, 1938. Part I, pp. 1-29; Part II, pp. 31-53.

Part I of this publication presents an over-all picture of registered hospital facilities in the continental United States in 1936, including totals for types and distribution of hospitals, number of beds, size of hospitals in terms of bed capacity, kinds of hospital control, and distribution and capacity of mental and tuberculosis hospitals. Statistical data are given in 6 figures, 9 tables, and 4 appendixes.

Part II describes trends in hospital development and construction for the period 1928-36, and analyzes the changes in respect to medical type, administrative control, size, and location. The authors state that although during this period hospitals in the United States decreased in number, they increased in bed capacity, revealing a trend toward elimination of small privately owned facilities in populous counties and expansion of bed capacity of larger institutions.

**Mountin, Joseph W., M. D.** *A Restatement of the General Hospital Situation. American Journal of Public Health* 30: 1406-1414, December 1940.

A discussion of the extent and use of hospital facilities of various types, based on the data gathered by the Hospital Cen-

sus of the National Health Survey. Includes a consideration of source of hospital funds.

Mountin, Joseph W., M. D., and Pennell, Elliott H. Selection of Hospitals in Small Urban Areas. *Hospitals* 16: 55-61, August 1942.

Uses National Health Survey and Hospital Census data to show that the general income level in small cities has an important bearing on the amount of hospital care received by the city residents. Shows that persons in low-income groups receive only half as much hospital care in poor cities as do similar groups in wealthy cities and that only those in higher-income groups increase their hospitalization rate when hospital facilities in poor cities are increased. Also discusses the effect of different types of hospital control and of presence of additional facilities in nearby areas on hospitalization rates in both poor and wealthy communities.

Mountin, Joseph W.; Pennell, Elliott H.; and Hankla, Emily. A Study of the Variations in Reports on Hospital Facilities and Their Use. *Public Health Reports* 53: 17-25, January 7, 1938. Reprint No. 1897.

Reports on an inquiry into the magnitude and nature of differences in hospital statistics compiled by several national agencies, specifically as to the four basic items of bed capacity, number of patients admitted, average daily census, and number of out-patient visits. As uncertainty in use of terms appears to be an important factor in discrepancies, use of uniform definitions is recommended, together with complete and uniform instructions and detailed observance of instructions by administrators. Because of inconsistencies in reported data, comparisons between hospitals and conclusions regarding existence and use of facilities, capital investment, and operating costs are considered to be well founded only

when based on totals for large groups of institutions.

Mountin, Joseph W., M. D.; Pennell, Elliott H.; and Pearson, Kay. The Distribution of Hospitals and Their Financial Support in Southern States. *Southern Medical Journal* 33: 402-411, April 1940.

Points out the inadequacy of hospital facilities in the Southern States and relates incomplete use of existing facilities to a system of financial support which relies on patients' fees to defray more than 70 percent of the cost of care. Advocates more hospital support by tax funds and voluntary contributions. Conclusions are based on a series of comparisons between the South and the three other major geographic areas of the country in respect to quantity and distribution of hospital facilities, amount of care afforded, sources of financial support, and degree of use of facilities as shown by occupancy statistics. Seven illustrative figures are included.

Mountin, Joseph W., M. D.; Pennell, Elliott H.; and Pearson, Kay. Factors That Influence Hospital Occupancy. *Hospitals* 15: 18-25, March 1941.

Analyzes the factors that contribute to an occupancy rate of only slightly more than two-thirds for general and allied special hospitals of the United States, and shows that size of hospital, type of control, source of income, and population of county wherein located all have some bearing on utilization of hospital beds. Finds peaks in occupancy rates generally occurring among hospitals with bed capacity of over 150, owned by State and local governments, and receiving most of their support from taxes rather than from patients' fees; lowest occupancy rates occurred as a rule in hospitals with bed capacity of less than 25, owned by proprietary agencies, and depending on patients' fees for most of their income. Shows size of county wherein located to

have little effect on the relation between each other factor and occupancy except for the fact that small hospitals are usually found in small counties and large hospitals in more populous counties. Concludes that although the factors analyzed are interrelated and interactive in influence on occupancy rates, the source of income appears to be a somewhat stronger factor than the others.

**Mountin, Joseph W.; Pennell, Elliott H.; and Pearson, Kay. Hospitals Existing Singly in Counties Have Similar Financial Structure.** *Public Health Reports* 56: 498-509, March 14, 1941. Reprint No. 2246.

Demonstrates on the basis of data obtained from the National Health Inventory and the American Medical Association that all hospitals existing as the sole facility in a county have similar financial support, and that government-controlled city or county hospitals existing singly in counties take on the financial character of voluntary institutions, whose main source of income is fees collected directly from patients. Includes tables showing that in general all types of small hospitals existing singly in counties derive three-fourths or more of their income from patients' fees. Points out that since rates of occupancy decline as proportion of income from patients increases, such a financial structure actually means lessened availability of hospital facilities to the general population.

**Mountin, Joseph W., M. D.; Pennell, Elliott H.; and Pearson, Kay. Regional Differences in Hospital Facilities for Tuberculosis, From the Standpoints of Accommodations, Sources of Financial Support, and Operating Costs.** In *National Tuberculosis Association, Transactions of the Thirty-Fifth Annual Meeting*, Boston, Mass., June 26, 27, 28, 29, 1939. New York, The Association, 1939. pp. 212-226.

Describes the unequal distribution of tuberculosis sanatoria in the major geo-

graphic areas of the United States and relates this inequality to differences in purchasing power as measured by per capita income in the various States. Finds the ratios of beds to population and of beds to tuberculosis deaths to be lowest in the South, where the poorest States are located, and highest in the wealthy industrial States, located principally in the Northeast. Concludes that location of hospital facilities is determined not by death rates from tuberculosis but by financial resources.

**Pennell, Elliott H., and Mountin, Joseph W., M. D. The Financial Support of Non-Government Hospitals as Revealed by the Recent Federal Business Census of Hospitals.** *Hospitals* 11: 11-19, December 1937.

This analysis of the income and expenses of voluntary hospitals in the United States as revealed by the 1935 Business Census of Hospitals shows patients' fees as the source of 71 percent of the income of nonprofit general and allied special hospitals and 91 percent of similar proprietary hospitals. Reveals that proprietary hospitals and those operated by fraternal organizations report incomes exceeding expenses, while institutions controlled by nonprofit agencies and churches operate at a loss. Includes 8 illustrative figures which show percentage distributions of total income according to medical type and control of hospitals; total income, income per bed, and income per \$1,000 expense reported, by type and control of hospitals; and other aspects of financial structure of voluntary hospitals.

**Pennell, Elliott H.; Mountin, Joseph W., M. D.; and Hankla, Emily. Summary Figures on Income, Expenditures, and Personnel of Hospitals.** *Hospitals* 12: 11-19, April 1938.

Using data obtained from the 1935 Business Census of Hospitals, gives summary figures on income, expenditures,

and personnel of 7,547 proprietary, non-profit, Federal, and other governmental hospitals. Includes 3 figures and 5 tables.

**Pennell, Elliott H.; Mountin, Joseph W.; and Pearson, Kay.** *Business Census of Hospitals, 1935; General Report.* Public Health Reports Supplement 154. 1939. 38 pp.

Designed as a report of basic hospital data derived from the Hospital Census findings, this publication includes 37 statistical tables and 10 maps and diagrams on the following aspects of hospital operation: facilities and services, gross income and expense, personnel and pay roll for a single month, endowment funds, and value of plant assets.

**Pennell, Elliott H.; Mountin, Joseph W.; and Pearson, Kay.** *Existence and Use of Hospital Facilities Among the Several States in Relation to Wealth as Expressed by Per Capita Income.* *Public Health Reports* 55: 822-846, May 10, 1940. Reprint No. 2160.

Demonstrates that presence and utilization of hospital facilities and amount of their financial support are to a large extent dependent on the purchasing power of an area. Shows that bed facilities in general and allied special hospitals are nearly  $2\frac{1}{2}$  times as numerous in wealthy States as in poor ones, and that the fewest patient-days per population and lowest occupancy rates are found in the poorest States, which have the fewest hospital facilities. Includes an appendix of 12 tables.

**Pennell, Elliott H.; Mountin, Joseph W.; and Pearson, Kay.** *Financial Support of Hospitals Controlled by State and Local Governments.* *Public Health Reports* 56: 433-445, March 7, 1941. Reprint No. 2243.

An analysis of data obtained from the 1935 Business Census of Hospitals showing the nature and sources of financial support of hospitals controlled by local and State governments (not Federal). Although all these hospitals receive part of their support from taxes, they also receive a considerable amount from direct payment by patients, the proportional distribution of these sources of support being roughly comparable to that of privately owned hospitals; small hospitals under governmental control receive practically the same proportion of their income from patients' fees as do privately owned non-profit hospitals. Tables show estimated income per bed and percentage from specified source for hospitals under State and local governmental control by location of hospital, by bed capacity of hospital, and by population and metropolitan character of county wherein situated.

**Pennell, Elliott H.; Mountin, Joseph W., M. D.; and Pearson, Kay.** *Prevailing Ratios of Personnel to Patients in Hospitals Offering General Care.* *Hospitals* 12: 42-47, November 1938.

Taking into account only full-time employees, an approximate ratio of 1 employee per patient exists in general and allied special hospitals in the United States, although this basic ratio varies according to the type of hospital control from a ratio of 700 employees per 1,000 patients in Federal nonmilitary institutions, to one of 1,400 employees per 1,000 patients in nonprofit institutions. Ratios and pay-roll costs per patient-day are presented for the following classes of employees: full-time physicians, full-time nurses, technicians and other professional employees, administrative and clerical employees, orderlies and other nonprofessional employees.

#### OUTPATIENT DEPARTMENTS

**Borowski, Anthony J., and Plumley, Margaret Lovell.** *Preventive Clinic Facilities Available in 94 Selected Coun-*

ties of the United States. *Public Health Reports* 54: 335-342, March 3, 1939. Reprint No. 2040.

An analysis of data obtained from 94 counties with a population of approximately 34,000,000 reveals that availability of clinic services appears to depend on size of population. Tables present the number of counties in different population groups having selected types of clinic services, and the number of outpatient departments and health agencies operating under specified control which render selected types of clinic services in counties of different population groups. While less populous counties may have immunization services; infant, maternal, pre-school, and school hygiene services; and tuberculosis services, they rarely have hospital outpatient departments. Non-official health agencies are almost entirely without cancer, heart, psychiatry, eye, venereal disease, and orthopedic services.

**Plumley, Margaret Lovell. Admission Policies for Out-Patient Departments.** *Hospital Management* 45: 20-22, February 1938.

Discusses hospital outpatient department admission policies relating to selection of clientele, admission fees, and charges for special services, on basis of data obtained from 769 outpatient departments. Includes tables showing percentage distribution of outpatient departments operating under different agencies according to residential restrictions for admission of patients, and percentage distribution of outpatient departments providing selected special services according to the fee policy reported for each service.

**Plumley, Margaret Lovell. A Count of Visits to Out-Patient Departments Fails to Disclose All Ambulatory Care by Hospitals.** *Hospitals* 11: 97-99, October 1937.

Data obtained from schedules submitted to more than 1,500 hospitals revealed that total services rendered to ambulatory patients are not accurately pictured by counts of visits to outpatient departments. True outpatient departments, defined as organized facilities for rendering medical care in clinics to the low-income and dependent groups in the population, were maintained by slightly more than half the reporting hospitals, while many hospitals reporting outpatient activities had no organized departments and apparently merely offered the services of inpatient departments to selected ambulatory patients. The character of such unorganized ambulatory care varied among hospitals and included emergency care, follow-up treatment for patients recently discharged from the hospital, and use of laboratory, X-ray, and similar facilities by patients of private physicians.

**Plumley, Margaret Lovell. General Out-Patient Departments the Important Element in Organized Out-Patient Care.** *Hospitals* 11: 30-32, September 1937.

Data obtained from 769 hospital outpatient departments indicate that departments giving general service to patients needing medical care of many types dominate the field of organized outpatient care, accounting for 87 percent of total reported visits. Such general outpatient departments are found most frequently in large cities, with only 5 percent of cities under 100,000 population reporting them. Data show the distribution of outpatient departments according to type and amount of service. General outpatient departments are distributed according to population-class of city and to volume of service rendered by such departments operating under different agencies.

**Plumley, Margaret Lovell. How Clinic Visits are Distributed.** *Modern Hospital* 50: 76-78, January 1938.

An analysis of the distribution of visits to outpatient departments of all types of



list. Includes tables and explanation of the statistical method used.

**Britten, Rollo H. Effects of Crowded Housing Upon Health.** *Labor Information Bulletin* (U. S. Bureau of Labor Statistics) 8: 5-6, July 1941.

Points out that the National Health Survey has demonstrated the existence of an important connection between housing and health, since illness rates are higher in congested households than in others. Shows the difficulty of estimating the influence of such factors as income, race, education, etc., upon the effects of overcrowding, or of determining to what extent persons badly housed might have excessive rates of sickness and mortality apart from the effect of the housing. Discusses the data obtained in the National Health Survey on pneumonia, influenza, tuberculosis, the communicable diseases of childhood, and home accidents, and their prevalence in poorly housed families, and shows the relation of increased frequency rate of digestive diseases to housing lacking inside flush toilets.

**Britten, Rollo H. Housing and Health.** *American Journal of Public Health* 28: 957-960, August 1938.

An interpretation of the results of the National Health Survey bearing on housing in terms of social need. Poor housing is considered as a symptom of social maladjustment. Data showing crowding are contrasted with results of other surveys, specifically the Urban Real Property Inventory of the Department of Commerce for 1934, and the Rural Housing Survey of the Bureau of Home Economics, 1933-34.

**Britten, Rollo H. New Light on the Relation of Housing to Health.** *American Journal of Public Health* 32: 193-199, February 1942.

Summarizes that part of the housing data obtained in the National Health Survey which appears to bear directly on health. Discusses specifically the relation of certain aspects of housing to four health problems: (1) the relation of crowding to the age-frequency rate of common communicable diseases of childhood; (2) the relation of crowding to the relative prevalence of secondary cases of tuberculosis; (3) the relation of housing having or not having inside flush toilets to the frequency rate of digestive diseases (stomach ailments, diarrhea, typhoid fever, etc.); and (4) the relation of substandard housing to the occurrence of home accidents. Concludes that the data indicate a broad association between housing and health, inasmuch as they show an excess of illness and accidents occurring in the poorly housed part of the population.

**Britten, Rollo H. Urban Housing Conditions in the United States.** *Labor Information Bulletin* (U. S. Bureau of Labor Statistics) 5: 1-3, June 1938.

A brief summary of National Health Survey housing data presented as a picture of general urban housing conditions among low-income families in this country.

**Britten, Rollo H., and Altman, Isidore. Illness and Accidents Among Persons Living Under Different Housing Conditions: Data Based on the National Health Survey.** *Public Health Reports* 56: 609-640, March 28, 1941. Reprint No. 2253.

A detailed report on the housing data of the National Health Survey, with extensive tabular material. Shows the relation between illness and crowding, and economic status, age, and type of disease. Considers crowding specifically in relation to pneumonia, influenza, tuberculosis, rheumatism, and the common communicable diseases of childhood (measles, whooping cough, chickenpox, mumps,

scarlet fever, German measles, diphtheria), with analysis of frequency by age. The presence or absence of inside flush toilets is considered in relation to the incidence of a group of digestive diseases (indigestion and other stomach ailments, diarrhea, enteritis, colitis, typhoid and paratyphoid fever). The frequency of occurrence of home accidents is considered in relation to rental or value of house and to age of occupants, sex, and means of injury. Concludes that because of the impossibility of isolating the housing factor from other economic factors affecting health, no statement of the precise role of housing in the health experience of low-income families is possible, although a demonstrable relation exists.

**Britten, Rollo H., and Brown, J. E.** *Urban Housing and Crowding: Relation to Certain Population Characteristics as Indicated by National Health Survey Data.* Public Health Bulletin 261. Washington, D. C., Federal Security Agency, U. S. Public Health Service, National Institute of Health, 1941. 123 pp.

A detailed report of the housing data of the National Health Survey relating to crowding, the index of crowding being taken as number of people per room. The degree-of-crowding categories used are (1) more than one but not more than one and a half persons per room, (2) more than one and a half but less than two persons per room, (3) two or more persons per room. Crowding is considered by proportion of households in each degree-of-crowding category; race; size of household; age of persons in crowded households; geographic region and size of city; tenancy, type, rental charge, or value of dwelling units; and size of dwelling units. Besides tables and figures in text, contains 98 pages of appendix tables giving specific data for each of the 83 surveyed cities, geographic areas, and city-size groups.

**Britten, Rollo H.; Brown, J. E.; and Altman, Isidore.** *Certain Characteristics*

*of Urban Housing and Their Relation to Illness and Accidents: Summary of Findings of the National Health Survey.* *Milbank Memorial Fund Quarterly* 18: 91-113, April 1940.

Summarizes the findings of the National Health Survey as to the adequacy of urban housing and its relation to sickness and accidents. Discusses the degree of crowding as measured by the index of persons per room; sanitary facilities and their relation to the occurrence of digestive diseases; crowding and the incidence of illness, particularly pneumonia, tuberculosis, and children's diseases; and value or rental charges of housing in relation to frequency of home accidents.

Also reproduced in *Housing for Health: Papers Presented Under the Auspices of the Committee on the Hygiene of Housing of the American Public Health Association.* Lancaster, Pennsylvania, Science Press Printing Company, 1941. pp. 159-181.

**DallaValle, J. M., and Britten, Rollo H.** *An Analysis of Sanitary Facilities in the United States.* *Public Health Reports* 57: 1604-1613, October 23, 1942. Reprint No. 2414.

Presents data on sanitary facilities (private or communal, inside or outside, flush toilets or privies), in the United States as revealed by the National Health Survey. Tabulations are given by geographic area, by city size, by color, by type of dwelling, and by monthly rental or owner's estimate of dwelling value. A separate table presents data for rural households.

**Leukhardt, John C.** *Better Housing as a Health Resource.* In *National Conference of Social Work Proceedings, 1941.* New York, Columbia University Press, 1941. pp. 485-493.

Discusses the results of the National Health Survey having to do with housing and the relation between housing and

health. Stresses the findings showing a correlation between crowding and contact diseases like pneumonia and tuberculosis, between lack of sanitary facilities and communicable digestive diseases, and between home accidents and low rental rate or home value.

**National Health Survey, 1935-1936. Adequacy of Urban Housing in the United States as Measured by Degree of Crowding and Type of Sanitary Facilities.** Preliminary Reports, Sickness and Medical Care Series, Bulletin 5. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938 (Revised 1939). 102 pp. Processed.

Data obtained in a survey of urban households in 83 cities in different parts of the country are presented in this discussion of urban housing in which number of persons per room (indicating the degree of crowding) and type of sanitary facilities (whether inside or outside, communal or private, flush or privy) are used as indexes of adequacy. Includes 88 pages of tables classifying the survey results for each city and geographic area by annual income and relief status of surveyed family. For cities under 100,000 population, data are also included on water supply. Tables for Southern cities and a few others show data by race in addition to annual income and relief status. Separate tables are given for rural areas in Georgia, Missouri, and Michigan.

Contents of this Bulletin are summarized and discussed in the *Monthly Labor Review* 47: 79-81, July 1938.

## POPULATION REPORTS

**Karpinos, Bernard D. School Attendance as Affected by Prevailing Socio-Economic Factors.** *School Review* 51: 39-49, January 1943.

Analyzes the data for school attendance obtained by the National Health Survey in terms of age, sex, color, and family

income of the population in the age range 7-24. Age groupings used are 7-13, 14-15, 16-17, 18-19, 20-24, corresponding to those used in the United States census reports. Data are also presented for the four geographic areas, Northeast, North Central, South, and West.

**Karpinos, Bernard D. The Socio-Economic and Employment Status of Urban Youth in the United States, 1935-36.** Public Health Bulletin 273. Washington, D. C., Federal Security Agency, U. S. Public Health Service, 1941. 58 pp.

Analyzes the results of the National Health Survey pertaining to the employment status of white and Negro urban youth. Considers, for both white and Negro, males and females, the availability for the labor market, proportions of employment and unemployment, relation of employment to family income, relation of educational attainment to employment status, and relation of occupation to employment status. Compares the findings for the youth group, aged 16-24, with those for the whole population, aged 16-64, and shows that youth has higher unemployment rates than any other age group. Includes a bibliography and extensive tabular material.

**Karpinos, Bernard D., and Sommers, Herbert J. Educational Attainment of Urban Youth in Various Income Classes.** *Elementary School Journal* 42: 677-687, May 1942; 766-774, June 1942.

Gives data from the National Health Survey showing educational attainment of white and Negro urban youth in the age groups 15-19 and 20-24 and relates their educational status directly to family income. Analyses are made for cumulative percentage distributions according to educational attainment by sex, race, family income, age group, and geographic area.

**National Health Survey, 1935-1936. Characteristics of the Urban Unem-**

ployed. Preliminary Reports, Population Series, Bulletin D. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. [20] pp. Processed.

Summarizes the unemployment findings of the National Health Survey and presents tabular material on the following aspects of the surveyed unemployed urban population: absolute and relative numbers of the urban unemployed; location in geographic area; sex and age; race. Compares the proportion of the population reported as workers with those so reported in the 1930 Census in order to throw light on the question whether the number of unemployed is artificially increased by the enumeration of work-seeking dependents of unemployed workers who would not be in the labor market if the family head were normally employed.

**National Health Survey, 1935-1936. Color, Sex and Age of the Population Enumerated.** Preliminary Reports, Population Series, Bulletin E. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. 16 pp. Processed.

Last in a series presenting characteristics of the surveyed population in statistical form, this bulletin is limited to a consideration of race, sex, and age of the population in the 83 cities included in the National Health Survey.

**National Health Survey, 1935-1936. Families Classified by Occupational Class of the Head.** Preliminary Reports, Population Series, Bulletin B. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. 29 pp. Processed.

Defines terms used and presents tabulated figures for families enumerated in the National Health Survey, classified by occupation and race of family head.

**National Health Survey, 1935-1936. Families Distributed by Income During the Survey Year.** Preliminary Reports, Population Series, Bulletin A. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938. [29] pp. Processed.

Presents the National Health Survey data showing distribution of families by race in seven income groups in each of the surveyed cities. Consists of tables plus a brief introduction and definition of terms.

**National Health Survey, 1935-1936. The Relief and Income Status of the Urban Population of the United States, 1935.** Preliminary Reports, Population Series, Bulletin C. Washington, D. C., U. S. Public Health Service, National Institute of Health, 1938 (Revised 1939). [34] pp. Processed.

Shows persons enumerated by the National Health Survey distributed according to the income of the families of which they are members. Gives numerical and percentage distribution tables by race for each enumerated city and for geographic areas. Discusses regional variations in income distribution as revealed by the data.

**Perrott, George St.J., and Holland, Dorothy F. Population Trends and Problems of Public Health.** *Milbank Memorial Fund Quarterly* 18: 359-392, October 1940.

Uses vital statistics to demonstrate a trend toward an aging population in the United States and on the basis of this trend and the morbidity data provided by the National Health Survey predicts the amount of illness and disability to be expected in 1980. Applying the National Health Survey findings on receipt of medical care to these predictions, arrives at estimates of the Nation's future needs for medical services, including number of doctors' calls and days of hospital and

nursing care required for specific diseases. Discusses the effect of these future needs on organized health services and points out the general implications for the country of the health problems presented.

## FERTILITY

**Karpinos, Bernard D., and Kiser, Clyde V. The Differential Fertility and Potential Rates of Growth of Various Income and Educational Classes of Urban Populations in the United States.** *Milbank Memorial Fund Quarterly* 17: 367-391, October 1939.

A study of the differential rates of fertility in broad socioeconomic classes, based on National Health Survey data concerning educational and income status of all urban white women of childbearing age regardless of marital status. Discusses the nuptial fertility rates for women classed by annual family income and by educational attainment and relates these rates to crude birth rates, standardized general fertility rates, and gross and net reproduction rates. Points out that when all urban white women of marriageable age are considered, an inverse relationship is found between socioeconomic status and fertility which is shown by a low reproductivity of the groups with highest economic status and a higher net reproductive rate among the groups with lowest socioeconomic status.

**Kiser, Clyde V. Birth Rates and Socio-Economic Attributes in 1935.** *Milbank Memorial Fund Quarterly* 17: 128-151, April 1939.

A progress report on the analysis of fertility data collected by the National Health Survey, which discusses fertility rates of married women of childbearing age by nativity, race, geographic area, and size of city in relation to the socioeconomic attributes: occupational status of head of family, educational attainment of wife, and level of family income.

Points out the diminishing birth rate among foreign-born white wives and among urban Negro wives and compares these rates with those for native white wives by geographic area and size of city. Shows that the top socioeconomic classes are not universally characterized by the lowest birth rates, and that in some groups of cities there seems to be little or no evidence of inverse association between birth rates and occupational status of head of the family or educational attainment of the wife. Suggests that class differences therefore appear to be of diminishing importance in relation to fertility.

**Kiser, Clyde V. Group Differences in Urban Fertility; a Study Derived From the National Health Survey.** Baltimore, Williams & Wilkins, 1942. 284 pp.

Presents fertility rates by nativity, race, geographic area, and size of community, with analysis by occupational status of family head, size of family income, and educational attainment of the wife. Discusses intragroup differences in marital fertility and compares class differences in rates of marital fertility with class differences in general fertility and reproduction rates. Findings for rural areas are separately considered, as are those on pregnancy wastage. Discusses the limitations of the Survey data, particularly as they relate to restriction to urban population, weighting by families in large cities, underenumeration of births, inadequacy of socioeconomic classifications, and underreporting of stillbirths and abortions. Contains fertility data for specific large cities, extensive tabular material, both in text and appendixes, and a bibliography.

**Kiser, Clyde V. Intra-Group Differences in Birth Rates of Married Women.** *Milbank Memorial Fund Quarterly* 19: 147-170, April 1941.

A study of the differential birth rates within socioeconomic classes, based on

data obtained from the National Health Survey on the birth rates among 284,246 married, native white women of child-bearing age. Analyzes the data according to four major classifications: variations in birth rates by educational status within occupational groups; variations in birth rates by occupational status within educational groups; variations in birth rates by occupational status within income groups; variations in birth rates by income status within occupational groups. Assesses the relative importance of three specific factors affecting fertility—occupational class of the head of the family, educational attainment of the wife, and size of family income. Suggests that variations in fertility appear to be correlated more closely with amount of income than with either occupational status or educational attainment.

**Kiser, Clyde V.** Variations in Birth Rates According to Occupational Status, Family Income, and Educational Attainment. *Milbank Memorial Fund Quarterly* 16: 39-56, January 1938.

A preliminary analysis of fertility data obtained from National Health Survey records of the 5 cities, Oakland, Newark, Grand Rapids, St. Paul, and Fall River, for 16,831 native white wives married to native white husbands and aged 15-44. Birth rates are analyzed by occupational class of the head of the family, by level of family income, and by educational status of family head and wife. Includes 12 illustrative figures and tables.

**Stix, Regine K., M. D., and Wiehl, Dorothy G.** Abortion and the Public Health. *American Journal of Public Health* 28: 621-628, May 1938.

Discusses the problem of prevention of abortion morbidity and mortality, citing the fact that one-fourth to one-third of all maternal deaths are associated with abortion. Data are principally drawn from three studies, one of which was the study of pregnancy wastage made in New

York City supplementary to the National Health Survey. Comparative figures are given for outcome of pregnancies in various areas of the United States, for proportion of pregnancies terminating in spontaneous and illegal abortion by order of birth and by income groups, and for abortion morbidity.

**Whelpton, P. K., and Kiser, Clyde V.** Trends, Determinants, and Control in Human Fertility. *Annals of American Academy of Political and Social Science* 237: 112-122, January 1945.

Uses National Health Survey data in the discussion of socioeconomic status and educational status as related to fertility rates.

**Wiehl, Dorothy G.** A Summary of Data on Reported Incidence of Abortion. *Milbank Memorial Fund Quarterly* 16: 80-88, January 1938.

Summarizes data on abortion from various sources, including the study of pregnancy wastage in New York City conducted in conjunction with the National Health Survey. Gives figures for spontaneous and illegal abortions as well as for total pregnancy wastage, estimating a total urban abortion rate of approximately 15 percent, 9 to 10 percent being spontaneous abortions, 4 to 5 percent illegal abortions.

**Wiehl, Dorothy G., and Berry, Katharine.** Pregnancy Wastage in New York City. *Milbank Memorial Fund Quarterly* 15: 229-247, July 1937.

Reports on the findings of a study of maternity cases made in New York City supplementary to the National Health Survey. Gives figures on 1,595 previous pregnancies of 595 multiparous white and Negro women for live births, stillbirths, and abortions, both induced and spontaneous. Analyzes the findings according to mother's income group and order of

pregnancy. Compares the results with those of other studies. Includes 11 figures and tables.

## FAMILY COMPOSITION STUDY

**Economic Insecurity in Relation to Family Composition.** *In Social Security Yearbook for the Calendar Year 1939: Annual Supplement to the Social Security Bulletin.* Washington, D. C., Federal Security Agency, Social Security Board, 1940. pp. 17-29.

Summarizes the results of the Family Composition Study pertaining to urban single-family households, considering these households a representative cross-section of American urban families since they constituted 76 percent of all households surveyed and 72 percent of the population of the urban sample for which income information was secured. Includes 12 tables giving analyses with respect to income and family size, income and family type, age of members and income, gainful workers and income, and unemployment and income. Finds, in general, the greatest economic insecurity among large or broken families, those which have no gainful worker or no employed gainful worker, and among children, particularly those in one-spouse families.

**Falk, Isidore S. The Economic Plight of American Children.** *In [White House] Conference on Children in a Democracy: Papers and Discussions at the Initial Session Held in Washington, D. C., April 26, 1939.* Washington, D. C., U. S. Dept. of Labor, Children's Bureau, 1939. pp. 41-44.

A slightly abridged version of a speech made at the planning session of the 1940 White House Conference, summarizing the results of the Family Composition Study of the National Health Survey as they pertain to the economic situation of children in urban areas. The speech is followed by a discussion which raises the

question of the validity of the National Health Survey data and of interpretations based on them and which cites the Study of Consumer Purchases conducted under WPA auspices as bearing out the Survey data.

**Falk, I. S., and Sanders, Barkev S. The Economic Status of Urban Families and Children.** *Social Security Bulletin* 2: 25-34, May 1939.

Reports on income of bio-legal families and the limitations of the data on family income obtained from the National Health Survey by the Family Composition Study. Considers the distribution of families by economic status, the distribution of individuals by type of family and by economic status, and the economic status of urban children, including their distribution by type of family, by economic status, and by number of children per family.

**Immerwahr, George E. Family Composition of Workers Represented in Old-Age and Survivors Insurance Claims.** *Social Security Bulletin* 4: 18-30, December 1941.

Compares data from the Family Composition Study with those obtained from claims under the old-age and survivors insurance program in 1940, and shows how they supplement each other. Considers the deceased workers represented in the claims data as less representative of the urban population than are those enumerated in the Family Composition Study, although the Study data are considered less exact in some respects than those obtained from the claims. Includes analysis by sex, age, and marital status of workers and number and age of children.

**Kantor, Anne G.; Carlton, Doris; and Sanders, Barkev S. Social Characteristics and Employment Status of Urban Workers.** *Social Security Bulletin* 4: 26-36, February 1941.

Concerned with family composition and income of persons in the labor market. Describes the age, sex, and employment status of urban workers according to their marital status and the type of household to which they belong, and discusses the multiplicity of factors whose interaction determines an individual's entry into the labor market and his employment pattern after entry.

**Myers, Robert J., and Rasor, Eugene A.** *Marital and Parental Status According to Age.* *Social Security Bulletin* 4: 8-11, November 1941.

Deals with that part of the data from the Study of Family Composition having to do with marital and parental status by age.<sup>1</sup> Discusses, with supporting charts, the percentage distribution of men and of women, according to age, by marital and parental status, the classifications for the latter being: single; married with no children; married with 1 child; married with 2 children; married with 3 children; married with 4 or more children; ex-married with children; ex-married with no children. Applies these data to the estimated number of persons insured under the old-age and survivors insurance program to provide a picture of the parental and marital status of the insured population.

**Sanders, Barkev S.** *Children and Income in Urban Single-Family Households.* *Social Security Bulletin* 2: 3-10, November 1939.

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<sup>1</sup> Comprehensive data on total urban sample for families and children by single years of age of children and of spouses are available for consultation in the Division of the Actuary of the Social Security Administration. These include tables containing ages of husband crossed with ages of wife by single and 5-year age groups for all married families and those with at least 1 child, and tables showing average age of children under 18 and average years of dependency to age 18 of these children by age of parent and by youngest, second youngest, etc., children.

Considers findings of the Family Composition Study with a view to showing the relation between family income and number of children in urban, single-family households. Concludes that there is a consistently negative association between presence of children in the family and income. Includes tables and charts.

**Sanders, Barkev S.** *Economic Status of the Aged in Urban Households.* *Social Security Bulletin* 3: 13-21, October 1940.

Compares the economic status of urban households having one or more aged members with that of other urban households. Presents analytical tables and charts to show that households with aged members are economically more secure than households with children; households in which the head is a divorced, widowed, or separated woman; households in which the head is unemployed or disabled; households without gainful workers; and households without employed workers. Concludes that the economic status of the aged as a group is better than that of children, broken families, and families which are deprived of the earnings of the principal wage earner by death, disability, or chronic unemployment.

**Sanders, Barkev S.** *Family Composition in the United States.* *Social Security Bulletin* 2: 9-13, April 1939.

Describes the purpose and scope of the Family Composition Study and defines terms used, specifically the term bio-legal family, on the basis of which family classifications were made. Gives distribution tables by marital status of both urban and rural Family Study samples of persons of given age and sex compared with similar categories of persons reported by the 1930 United States Census.

**Sanders, Barkev S.** *Gainful Workers and Income in Urban Single-Family Households.* *Social Security Bulletin* 2: 29-36, December 1939.



Analyzes the data furnished by the Family Composition Study to show the relationship between family income and number of gainful workers per family for single-family households. Discusses income distribution of families and income of families of specified size in relation to number of gainful workers, variation of income in families by type, size, and number of workers, and family income in relation to age of head.

**Sanders, Barkev S. Labor-Force Reserves.** *Social Security Bulletin* 5: 16-27, July 1942.

Estimates the population of the continental United States for ages 14 and over for 1942 and applies to these estimates the data concerning marital status and family and dependency relationships produced by the Family Composition Study, thus deriving estimates for 1942 of the number of single, married, widowed, divorced, and separated women according to age, number of their children, and age of the children. Considers these estimates as indications of the potential availability of these women for additions to the labor force. Appends an explanation of methods used to arrive at estimates of population increases in the labor force, and a description of the scope, method, and limitations of the Family Composition Study.

Supplementary tables for use in conjunction with the discussion are bound separately and issued as Bureau Memorandum No. 47, listed below.

**Sanders, Barkev S. Labor Force Reserves.** Bureau Memorandum 47. Washington, D. C., Federal Security Agency, Social Security Board, Bureau of Research and Statistics, 1942. 30 pp. Processed.

Supplementary tables for use with the discussion of labor force reserves, listed above.

**Sanders, Barkev S. A Preliminary Estimate of the Probable Number of Persons Who Would Be Subject to the Proposed Draft Bill.** August 6, 1940. Available in Federal Security Agency Library.

Uses data from the National Health Survey and the Family Composition Study to estimate number of males in stated age groups who would be married, who would have child dependents, who would be single and living with dependent widowed mothers, and who would be unmarried and without dependents.

**Sanders, Barkev S., and Carlton, Doris. Children in Urban and Rural Families.** *Social Security Bulletin* 2: 36-46, October 1939.

Discusses the distribution of rural and urban children in the families enumerated in the National Health Survey. Data show the distribution of children in urban and rural families by type of family, by number of children per family, and by age of head of family, and a similar analysis is presented for the families. The findings are related to the provisions and operation of the 1939 amendments to the Social Security Act relating to programs for aid to dependent children.

**Sanders, Barkev S., and Kantor, Anne G. Income, Children, and Gainful Workers in Urban Single-Family Households.** *Social Security Bulletin* 3: 21-30, February 1940.

Deals with variations in income distribution in urban single-family households included in the Family Composition Study in relation both to the number of gainful workers and the number of children per family. Analyzes the data to show that an inverse correlation between family income and number of children persists even in the presence of more than one gainful worker.

**Sanders, Barkev S., and Kantor, Anne G. Income of Urban Families and Indi-**

**viduals in Single-Family Households.** *Social Security Bulletin* 2: 25-36, September 1939.

Deals with the economic status of single-family households as measured by income reported to the National Health Survey. Data are analyzed by family size, family type, age of family head, and the combinations of these factors. Includes 9 tables.

**Sanders, Barkev S.; Kantor, Anne G.; and Carlton, Doris. Income, Children, and Gainful Workers in Urban Multi-Family Households.** *Social Security Bulletin* 3: 17-28, April 1940.

Analyzes the relationships between income status of urban multifamily households, size and type of the bio-legal families represented in them, age of family head, number of children, and number of gainful workers. Compares these analyses with those for single-family households, and concludes that patterns of correlation shown by analyses of single-family data are supported with very little modification by those of multifamily households and may therefore be considered characteristic of all families.

**Statistics of Family Composition in Selected Areas of the United States, 1934-36.** Vol. 1, Detroit, Michigan; Vol. 2, Boston, Massachusetts; Vol. 3, Buffalo, New York; Vol. 4, Chicago, Illinois; Vol. 5, New York, New York; Vol. 6, Philadelphia, Pennsylvania; Vol. 7, Cleveland, Ohio; Vol. 8, St. Louis, Missouri; Vol. 9, Pittsburgh, Pennsylvania; Vol. 10, Los Angeles, California; Vol. 11, The Urban Sample (83 Cities in 18 States). Federal Security Agency, Social Security Board, Bureau of Research and Statistics, Bureau Memorandum No. 45. Washington, D. C., The Agency, 1941, 1942, 1943. Processed.

Each of the first 10 volumes contains 181 tables of family composition grouped in 11 categories, with analyses by family size and type, minors, age, gainful workers, employment status, occupation, income, housing, race, nativity, and education. The eleventh volume has 260 tables giving family composition data for all cities combined, presented in the same categories used in the other volumes. All volumes include a description of the National Health Survey, the purpose, scope, and method of the Family Composition Study, the sampling method used, and an explanatory statement about each group of tables.

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PUBLIC HEALTH SERVICE PUBLICATION NO. 85

(Including Reprint No. 2098 from the Public Health Reports, Vol. 54, No. 7,  
September 15, 1939, Pages 1663-1687)

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1951

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For sale by the Superintendent of Documents, U. S. Government Printing Office  
Washington 25, D. C. - Price 30 cents